NUTRITION AND DEMOGRAPHY

AN ANTHROPOLOGICAL STUDY ON THE KONDHS OF ODISHA

Kalpana Rani Sabat
Nirmal Chandra Dash

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Scheduled Castes and Scheduled Tribes
Research and Training Institute (SCSTRTI)
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Dedicated

to

Professor L. K. Mahapatra

an

International Anthropologist

FOREWORD

Very seldom empirical studies on status of Nutrition among tribals have been undertaken by researchers in the Country. The book authored jointly by Dr. Kalpana Rani Sabat (the researcher) and her able research supervisor Prof. Nirmal Chandra Dash is a sincere attempt to bring in to light various dimensions of nutritional status of a numerically dominant tribal community "Kondh" of Odisha. At the outset I congratulate both the authors for this seminal work.

In this book, the authors have tried to assess the nutritional status of Kondh tribal community across age groups and gender and have shown its impact on the health issues. The authors have also highlighted various causes responsible for the poor nutritional status of the tribal population and its consequences. One of the most important highlights of this study is bringing out the traditional health care practices prevalent among the Kondh tribal community and the dogmatic believe which has prevented the community from accessing the modern health care system by Government. At the same time, some of the indigenous practices of health care which has relevance for the modern health care system for integration also have been brought out.

Having gone through the book and the scientific analysis of facts, I am sure the study and its findings made by Prof. Dash, an Anthropo Demographer will give impetus for researchers to take up this kind of study among other tribal communities so that a clear picture of Nutritional Status among tribal communities in the state can come out which can be used as important input for the researchers, administrators and policy makers for making appropriate interventions for improving the nutritional and health seeking behaviour of crores of tribal population of the State.

To be precise, this book can be used as a reference book for the tribal health Planners and Researchers. Students, Scholars and Teachers of Anthropology, Demography, Tribal Studies, Population Studies,

Social & Preventive Medicine and other allied departments as a useful resource reading material.

I congratulate the authors for the book, "Nutrition and Demography: An Anthropological Study of the Kondhs of Odisha" and giving the opportunity to SCSTRTI for its publication.

Prof. (Dr.) A. B. Ota, IAS
Advisor-cum-Director & Special Secretary,
SCSTRTI, Odisha, Bhubaneswar.

PREFACE

INDIA has a Tribal population of about 110 million (comprising over 705 tribal communities as per the recent (2021) estimates and the share of Odisha is nearly 10% (11 million, comprising as many as 62 tribes). These 62 tribes have been declared as Scheduled (Tribes under Article 342 of Indian Constitution) and they form almost One Fifth (nearly 21%) of the total population of the State. The tribe under present study, the KONDH is the largest major tribe of Odisha having an estimated population of about 20 Lakhs in 2021 (as per 2011 Census their number was 16.3 Lakhs).

Nutritional Demographic Study is the first of its kind in the State. However, there are a good number of studies in Demography and we found only a few studies in Nutrition, particular on calorie consumption and growth. Interestingly, no studies were found on the impact of Nutrition on the vital Demographic components. Once, Professor L.K. Mahapatra, an eminent International Anthropologist, while delivering his presidential address in a National Seminar on Tribal Health, highlighted the importance of nutritional impact studies on general health and growth. That has attracted my (the second author) attention for taking up such a study. However, besides the nutritional impact on the demographic components, the equally important socioeconomic and health data were also incorporated in the study. Although this is an exploratory study, some descriptive hypotheses are also tested by analysing the simple multivariate tables. All empirical attempts have been made to make this Anthropological study successful.

The book will be very useful to the developmental planners for planning tribal family welfare & housing, tribal education, tribal nutrition & health and so on. The book will definitely be helpful to the students and scholars of Anthropology, Demography (Population Studies), Sociology, Social Work and to the students of SPM (Social and

Preventive Medicine). Finally, this book will be of much value to the NGOs sincerely working in tribal development.

The authors would fail in their attempt unless they acknowledge the help received from different persons and institutions. The authors are thankful to the Late Prof. J.P. Kuanr, Head of the Department of Anthropology, Khallikote Autonomous College for providing all departmental support and facilities. The authors are also obliged to the former Professor B. Bhaskar Rao, Department of Anthropology, Andhra University, Waltair for his timely suggestions.

The authors are also thankful to Prof. (Dr) Ravi Satpathy, former Principal, M.K.C.G Medical College, Berhampur, Dr. (Ms.) Purnasashi Das, H.O.D. Social and Preventive Medicine, Dr. Shivram Panda, Medical Officer, Bali pada Dispensary, Dr. Ramachandra Rao, Medical Officer, Mr. Suleman Ahmed of Kukudahandi P.H.C. and to Mr. Yudhishthira Sahu, District Statistical Officer.

Thanks, are also due to all the Anganwadi workers, Health workers for giving the required information regarding the health status of the Kondh villages of the study area, to all the Sarpanches, Ward members and above all the Respondents for their needful cooperation.

The authors owe a lot to Mr. Rajesh Sabat and Mr. Bipra Charan Sabat for their ungrudging help and co-operation at all stages of the study.

Last but not the least, the authors express their gratefulness to Prof. (Dr.) A. B. Ota, Special Secretary cum Director, SCSTRTI, Odisha for considering this original Anthropological manuscript worth publishing.

Kalpana Rani Sabat
Nirmal Chandra Dash

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01 | Introduction

Nutritional Status and Demography

Nutrition and demography are the two important branches of Bio-Social Science, which are attracting, at present, to large number of scholars in different parts of the world. Each of them by itself is an independent and developed discipline. Each has its own scopes, method of studies and theories. Nutrition is the science of foods, the nutrients and other substances there in; their actions; interactions and balance in relationship to health and diseases; the process by which the organism ingests, absorbs, transports and utilizes nutrients and disposes of their end products (Robinson 1972). Whereas demography simply deals with the qualitative and quantitative aspects of population changes and the various process which effect these changes (Kuper and Kuper 1985).

The nutritional status is the overall condition of health of a group as influenced by the utilization of the nutrients. The nutritional status of the group is often the result of many interrelated factors. It is influenced by the adequacy of food intake both in terms of quantity and quality and by the physical health of the individual (W.H.O. 1978).

From a nutritional point of view mankind can be divided into four types:

(1) Primitive hunter-gatherers.

(2) Peasant agriculturists and pastoralists.

(3) Urban slum-dwellers, and

(4) The affluents.

There are not many primitive hunter-gatherers in the world today, but a major part of human race are still peasant agriculturists, although increasing numbers are either joining urban slum dwellers or becoming affluent. In no country there is only one type of community. But India has all four types of communities. She is still predominantly a country of peasants, but the rapidly growing towns have increasing number of poor urban slum and sizable affluent society; in the jungles a few primitive hunter-gatherers live their lives outside any civilization.

Below a brief description is given of the main nutritional problems present in the four types of societies.

Hunter-gatherers:

There are only a few groups of hunter-gatherers living in the world today, in the next generation there might be even fewer. It is not that the people are dying alone but their indigenous technology is too limited and subtle to stand up to competition from the modern technology. At a symposium on contemporary hunter-gatherers Lee (1968) has described that most of them, except in the Arctic, obtain more food from gathering vegetables than from hunting animals. He also made a study about kung Bushman and concluded that:

First, the Bushman do not become obese, except for the few who live with Bantu primitive pastoralists in the neighbourhood.

Second, they showed no malnutrition unless something had gone wrong. i.e., an illness or an injury. There were no clinical or biochemical signs of deficiency of any vitamin.

Third, high blood pressure was not found, and both systolic and diastolic pressure fall with increasing age in male Bushman. The explanation could be that the Bushman do not eat salt.

Fourth, the Bushman's plasma cholesterol concentration averaged 3.0 ml./1 (120 mg./ 120 ml.), a figure among the lowest in the world. The Bushman do not eat meat; they obtain more than half their energy from vegetable foods. The largest single item in which their diet

is the mango kernel (Ricinodendron rautanenii) which is good source of protein. The essential characteristics of the diet of hunter-gatherers are mixed type.

Fifth, the Bushman do not have carious teeth though their teeth get worn down by the hard food as they grow older.

Sixth, their numbers are few and appear to be stationary.

These observation on the Bushman and other studies on contemporary hunter gatherers give some insights into nutritional studies.

Peasant Agriculturists and Pastoralists

Peasant agriculturists get their foods from crops. Nutrition in this setting has five striking differences from that of hunter-gatherers (Davidson and Passmore 1986).

First, with harvest once a year, food had to be stored. Hunter-gatherers do not store food; they share it.

Second, some of the wealthy peasants overeat and become obsessed. Hunter-gatherers feast now and again after a successful hunt but not regularly.

Third, alcohol is available, made from the ready supply of carbohydrate in cereals. Hunter-gatherers do not have this solace. Perhaps in smaller social groups they have less need for it.

Fourth, the most dangerous nutritional effects have come from concentrating on a single crop that yields the most energy.

Fifth, there is liability to develop specific deficiency diseases, when a large proportion of the dietary energy comes from a single staple food i.e., a cereal or a starchy root.

Most of the healthy and virile population of the dietary energy comes from a single staple food i.e., a cereal or a starchy root.

Most of the healthy and virile populations of the world have been peasant agriculturists. Peasant agriculturists are healthy and well fed as long as they have enough good land and favourable weather.

Pastoralists

Pastoralists are at the same technical level as subsistence agriculturists but have a difficult way of life and are less numerous.

Pastoral tribesmen do not show the usual relation between income and the quality of the diet. Although they are poor in many conditions, yet they eat a diet rich in animal protein (Davidson and Passmore 1986).

Urban slum dwellers

The industrial revolution produced multitudes of a new urban proletariat who were uprooted from their rural origins and packed round the factories in bad housing. An increasing number of the world's around the cities of Asia, Africa and Latin America. The food which they buy is likely to be poor values for money and contaminated by pathogens (Davidson and Passmore 1986). The problems are often compounded by alcoholism and violence. The infant mortality rate is over 100, whereas in prosperous countries with good health services it is below 15 per thousand. A combination of poor hygiene and bad nutrition is responsible. In a slum, conditions are ideal for the spread of infections, notably gastroenteritis and respiratory infections. These illnesses reduce the food intake and increase the need for nutrients, and so readily precipitate marasmus, a severe and often fatal state of under nutrition in children. In slum conditions adolescents and adults are much less susceptible to deficiency disease than the children, but such diseases may follow severe infections. In adults a more important cause is drug dependence. Persons dependent on drugs may become malnourished for the four following reasons:

1. They may spend so much money on the drug that they can't afford to a proper diet.
2. A drug may depress their appetites.
3. A drug habit may upset incentives to healthy living and

4. A drug may interfere with metabolism in the tissues and organs, notably in the liver.

Affluent Societies

People of affluent societies free from the fear of crop failure and the great majority of them can afford to eat their favourite dishes all the year around.

National statistics shows that with increasing wealth there is increased consumption of meat, animal fats and sugar and decreased consumption of cereals and potatoes. Excessive consumption of tobacco and alcohol are major causes of ill health and deaths which are preventable. If reduced physical activity is not accompanied by reduced dietary intake, obesity follows inevitably; it is widespread in all affluent societies and is a contributory cause of diabetes and hypertension.

Affluence removes the nutrition problems of poor peasants and urban slum dwellers but at the same time creates its own nutritional problems.

In nutritional survey, assessment of the nutritional status of population group or community is more important. The assessment of the nutritional status involves various techniques. Proper evaluation demands a multifold approach covering all the different stages in the natural history of nutritional diseases.

The assessment methods include the following (Park & Park 1991).

1. Clinical examination.
2. Anthropometric measurements.
3. Biochemical evaluation.
4. Assessment of dietary intake.
5. Functional assessment.
6. Vital and health statistics.
7. Ecological studies.

The different methods used for the appraisal of nutritional status are not mutually exclusive, on the contrary they are complimentary.

Demography as understood today, is the scientific study of human population. It focuses its attention on three readily observable human phenomena:

(a) Changes in population size (growth or decline).

(b) The composition of the population, and

(c) The distribution of population in space.

It deals with five "demographic processes", namely fertility, mortality, marriage, migration and social mobility. These five processes are continually at work within a population determining size, composition and distribution (Bougue 1969).

1.1 Importance and focus of the present study

The Kondh tribe of Ganjam District has been the focus of the present study. An attempt has been made to highlight some basic the features of nutritional status and demography these less developed people of the District. The present study, being the first of its kind, will be of great importance to the planners, administrators and social welfare agencies for planning essential services to the needs of the growing population of such a diversified community in the remote areas of the state.

The nutritional status of a community is the Sum total of the nutritional conditions of the individuals who belong to that community. The main objective of this comprehensive study is to obtain precise information on the prevalence and geographic distribution of nutritional problems of a given community, and identification of individuals or population group 'at risk' or in greatest need of assistance. In the absence of this information, problems cannot be defined. The purpose of nutritional assessment is to develop a health care programme that meets the need defined by that assessment, including evaluation of the effectiveness of such programme (Park & Park 1991).

A nutritional survey provides information about dietary intake patterns, specific foods consumed, estimate calorie intake and some specific measurements. It indicates the relative dietary inadequacies as judged by standards available at present. Such information will be valuable for planning health education activities. It will also be useful for the extent and nature of changes needed in the agriculture and food production industries.

As the study focuses on two different sections of the tribe, it shows a comparative feature in a comprehensive manner. The two comparative units are, the semi-accultured Kondhs and the accultured Kondhs. The semi-accultured Kondhs are those who choose their livelihood in the Interior areas and are commonly known as highland or Interior Kondhs. While the accultured type mostly live in the plains or Roadside areas and are called as plainland or Roadside Kondhs. Thus, the two sections of the Kondhs of Ganjam will henceforth be named as, 1- the Roadside Kondh (RK), 2-the Interior Kondh (IK).

As mentioned earlier, from a nutritional point of view, there are seven types of techniques which help to evaluate the nutritional status of the population. However, in the present study two important namely dietary survey and nutritional anthropology have been used.

Along with nutrition, as started earlier, demography also deals with three important processes, from which the authors have focused on two vital processes such as fertility and morality for the present purpose. The study explores the nutritional status of the Kondhs of Ganjam and shows its impact on the fertility and morality behaviour of the community. Thus, the present study comes under Nutritional Demography and this is the first of its kind in the State. Therefore, the finding of the study will be of immense value for the government and non-government organizations interested in tribal development. The findings will also be helpful to other interested scholars for taking up further elaborative study in nutrition and demography.

1.2 Related Studies

It is essential to study and record the findings of the related studies done elsewhere previously. For this, authors have conducted some literature review on nutrition and demography of both tribal non-tribal populations.

1.2.1 Nutritional Studies

On the nutritional aspect the following are the important findings of some tribal studies performed by different scholars.

A comparative study between the tribal population of New Guinea and Australian Aborigines reveal that with a similar calorie intake (2300 calories) per day the young adults of the New Guinea Population were healthier with normal serum proteins and haemoglobin levels. Physical fitness was also batter than the Australian aborigines. However, obesity was not-existent in either populations, (Sharma 1989).

Gore and others (1977) working on tribes of Indravati river basin encountered that the average calorie and protein intake per nutritional adult unit were found to be 1665 kcal and 36 gm. of protein which is far less than the requirements. They made a comparison with the tribals of Abuzhmar area of Bastar District and found that the tribes consume even lesser quantity of calorie (1385 kcal) and the protein intake of the tribes was slightly higher (44.7 gm.).

Working on Kondhs of Kalahandi District of Odisha, K. Sharma (1979) has found that the Kondh diet is inadequate according to the accepted standards. Its deficiencies are both qualitative and quantitative. The average calorie intake of an adult Kondh is 1709 which is less than the ICMR standards (2200).

Visveswaraya, Thimmayama, Parvati and Swaminathan, 1981 on their paper, "validity of calorie coefficient for estimation of nutrients intake of adults", have analysed that, the coefficient based on suggested allowances were not significant for unban female adults only.

Coefficient were independent of age and sex in urban adults. Sex difference and effect of age were significant in rural adults. These variations between rural and urban adults were due to variations in socio-economic status.

Sadasivam et. al. (1980) carried a nutritional survey in a village of Tamilnadu, and the findings show that, as per the calorie intake is concerned 58% of the families ae in the border line of 2000 to 2800 calories. Whereas only 16% of the families have enough calorific foods and the rest of the families has less calories intake.

Gupta (1980) and Sahu (1982) working on Birhor, a primitive tribe of Bihar, have concluded that Birhors are the lowest consumers as far as nutrients are concerned. According to them the calorie intake is much below the requirements, which indicates inadequacy of food supplies to meet their needs.

Thimmayama et. al. (1982) on their paper socio-economic status, diet and nutrient adequacies of different population groups in urban and rural Hyderabad, concluded that socio-economic differences were observed to have an influence in the diet intake of population. The main findings are as follows:

1. In the upper income group between, 70% to 100% of pre-school, school age, adolescents and adults were observed to be adequate in both calories and proteins. However, in the middle-income group the pre-school children were adequate in calorie and protein.
2. No sex difference was observed in any of the age groups except among adults.
3. All the population groups in the upper middle income were observed to be more or less adequate in both calories and proteins.

According to P.D. Tiwari and C.K. Jain (1989) working on Rewa Plateau, found that the average daily intake of calories per individual is

1888 calories which is less than the recommended allowance i.e. 2400 calories. They also find that about 86% of the calorie availability is supplied by cereals.

Tiwari (1989) has described that the per capita per day average calorie intake of the Sagar District (M.P.) is 1897. If this is compared with the average intake of different nutrients in the region with the standard requirement it is observed that the diet of the region is quite deficient in most of the nutrients.

Working on urban slums of Visakhapatnam, B.R. Busi et. al. (1989) have described that, the family size, income and occupation seem to have reasonable effects of dietary intake. The dietary intakes were good in small families and better with increased income. With regular employment there was an even pattern of consumption of all kinds of foods.

Mona Chakravarty and Singhrol (1989) carried a nutritional survey among various tribes of India. In Baster, millet like "ragi" form the staple food for Beiges of Madhya Pradesh. Nonvegetarian foods are generally well enjoyed and the source may vary from anything like lizard, and field rat to tigers. Roasted insects are a delicacy among Rains and Murias. "Chutney" made from a paste of roasted ants with chilies is a favourite dish for these groups. They consume little milk. Similarly, pulses are not common in the tribal areas. Only Katas, Murias and Kondhs grow and eat some Pulses like red gram. Murias, Baigas and Moapa's have a special liking for greens. Boiled vegetables are a must with the meals for many tribal. Mahua taken in any form gives a lot of riboflavin. Some cooking practices of tribes deserve attention. For examples, they do not wash their cereals or millets before cooking nor the excess water after cooking thrown away.

Sabat and Dash (1995), in one of their recent papers on a Kondh village, have found that the adult Kondh on an average consume 2084 calories per day, which is far below than the required level (2400).

Several anthropometric surveys in India have also been concluded, however, majority of them are confined to non-tribal populations. The tribal element which constitutes the sub-stratum of the Indian population has been the subject of very few of such surveys.

Sharma (1979) has reported that the Kondhs of Odisha (Kalahandi District) have an average height of 156.5cm. and they fall in the category of small stature (150-160cm).

Rashid (1974) reported that the average height of Bastar tribe i.e. Bhatta (160.36cm) and Dorla (160.01cm). These figures show that Kondhs and tribes of Bastar resemble with respect to this trait.

Mukhopadhyaya, Singh and Mallik (1984) worked on two neighbouring tribal population of west Bengal i.e. Lodha and Mahali and found that the Mahali have a smaller body dimension than Lodha. It is perhaps because the original occupation of Lodha like hunting, wood cutting involved a lot of physical power whereas Mahali occupation of basketry, which they are practicing for last few generations, need not involve much of muscle power. Moreover, Mahali have a sedentary posture. As a result of the shorter height and lower body weight of Mahali, they have more accumulation of fat all over the body than Lodha.

1.2.2 Demographic Studies

Demographic work among the tribal population is comparatively less than the non-tribal population. However, some studies have been done by different scholar on various aspects of demography. In view of the scanty demographic work among the tribal population, authors have referred only a few related studies on tribal demography.

In 1951, Madhya Pradesh had a birth rate of 33.5% while the death rate was 24.8%. The corresponding figures of a tribal District Chinaware, for instance during the same period was 34.9% and 26.8% (Ali, 1973).

Dr. Sayed Ashfaq Ali has written that the following conditions basing upon the census figures of 1961, in his book "Tribal Demography in Madhya Pradesh".

1. In the rural areas the tribal females are slightly larger in number. While in the urban areas there is comparatively scarcity of tribal female population.
2. The Bhills have larger number of males than the females. Whereas, in urban areas there is lesser number of female than the males. Similar is the position of the Kharias, Gonds and the Oroans.

Generally tribal people have large number of females per 1000 males in comparison with the non-tribal people. Fertility of Women varies from tribe to tribe as it is with the different species and with the members of the same species.

The findings of a sample survey on fertility brings out the fact that the tribal are very prolific in procreating children of all the tribes, the Bhills, Bhikras. Murias, Kanwar and the Oroans are the most fertile. As per the tribes of Madhya Pradesh Ashfaq Ali said that there is no sign of declining fertility.

As per a Gond study, Dash (1979) describes that the Gonds, being the largest populous Scheduled Tribe of India shows comparatively low birth and death rates which are 43 and 23 per one thousand population respectively. They have tendency to migrate to urban areas and the male migration is comparatively high. According to 1971 census the sex ratio favours to female i.e. 993 males per 1000 females. However, his findings are based on the census data which has its own limitations.

According to another study, the Juang, a primitive tribe of Odisha, show a low rate of fertility due to the decreased reproductive span of the Juang females. However, the low age at marriage does not have any serious impact on the fertility rate (Dash 1979).

In one of the interesting studies Dash (1980) concludes that the tribes with their low economic standards prefer to give birth male child to enhance their income level but, in this process, they increase the load of population due to high fertility. Further he states that as the tribal children (particularly sons) assist to their family income- the parents are hesitant to send their children to schools which is responsible for their low education.

The age of last childbirth is comparatively low, as shown above one of the reasons for this being that tribal women when performing the role of mother-in-law tend to fill ashamed to give birth further children (Nag 1965)

Dash and Mahapatra (1977) in their paper "Social Structure and Tribal Demography of Odisha" have compared the sex ratio of the tribes to that of the general population of Odisha. It shows that the sex ratio of the tribes favours the females (1007 females per 1000 males). Whereas it favours males in general population i.e., 988 females per 1000 males. They have also mentioned that the tribal growth during 1961 to 1971 was comparatively low that of the general population during the same period, 23% and 24% respectively.

In a Koman study, Srivastava (1990) observed that the age and sex composition of the Komans were relatively higher in the age group of 15-44 years. It is also noticed that proportion of Koman population in the age group of 45 years and above were found relatively lower for the year 1971 than 1961. However, the overall sex ratio for 1961 and 1971 census were favourable to females i.e., 990 males per 1000 females.

Patel (1993) has described that Koya women give birth their children after three to four years of nuptiality and complete their fertility schedule between 32 to 33 years of age which is much below than their actual period of fecundity, the peak fertility period being 25 to 29 years. However, on an average the Koya women have more than 5 children. Further while writing about Kondhs fertility, Patel has stated that they complete their fertility schedule 31 to 32 years of age. That the

Kondh women produce children normally after 2 to 3 years of nuptiality (the effective age of marriage). On an average the Kondh women produce more than six children. The study shows the total fertility rate of Kondh women is higher than that of Koya women which is 6.23 and 5.39 respectively (Patel 93).

Guha (1987) on her paper, "Demo-genetic Study among the Murias of Bastar District", concluded that there is no definite trend of mortality through age group. However, male mortality rate is higher than the female mortality rate.

Working on mortality pattern among the Kutia Kondhs of Odisha, Satish Kumar et. al. (1991) have compared to that of other tribes. They described that comparison of offspring mortality by maternal age of Kutia Kondhs with those of Odisha and Bastar tribes shows no significant differences with the exception of offspring mortality in the maternal age of 15-19 years among Bastar tribes where the offspring mortality is considerably low, and of 45-49 years among Juangs of Odisha, where the offspring mortality is appreciably high. Sabat and Dash, 1995 working on a Kondh village have marked that the birth and death rates are 43.47 and 23.41 respectively.

1.3. Tribes of Odisha

India has a great variety of tribal population reflecting its great ethnic diversity. They constitute about 8.5% of the total population of India are found in all states and union territories except Punjab, Haryana, Jammu & Kashmir, Delhi, Chandigarh and Puducherry the presence of these groups is very high in Madhya Pradesh, which is followed by Bihar, Maharashtra and Odisha. About 51.12% of the total tribal population of the country are found in these four states.

Odisha is one of the few States of Indian union where a large proportion of population belong to the tribal communities. It has also the second largest variety of ethnic groups in India numbering 62 Scheduled Tribes, next to Assam, with a population of nearly 70 lakhs

as per 1991 census, 22.21% of the total population. (The estimated tribal population in 2021 is about one Crore). Although they are distributed in all the Districts, the undivided Koraput, who has the maximum tribal population followed by Mayurbhanj and Sundargarh. Kendujhar, Kalahandi, Phulbani and Sambalpur Districts have a tribal population of more than 25% of their total population. Besides these Districts, tribes are also found in small pockets of Ganjam, Puri, Cuttack Baleshwar and Balangir. One among every four inhabitants of Odisha is a tribe.

The Tribes of Odisha are considered as the most ancient inhabitant of the Province. Therefore, the term 'Adivasi', literally means 'aborigines' or the oldest ethnological section of population, is locally used for the tribal communities. They are also called Girijan or Varanasi as they inhabit on the hill ranges and forests. Hence one can rightly say that 'Adivasis' are the children of forest.

The English term 'tribes' comes from the Latin word 'Tribus'. It denotes a group of families or communities linked by social, economic, religious or blood ties and usual having a common culture and dialect and a recognized leader (Oxford Dictionary 1994). According to Behura the term tribe refers to a type of society and designates a stage of evolution in human society. As a type of society, the term signifies a set of characteristics features and as a stage of evolution it connects a specific mode of social organization (Behura 1990).

The Tribal people of Odisha with their ethnic characteristics of living socio-cultural set up and economic pursuits have kept themselves in and around the mountain and forest tracts of the states, particularly of the Eastern Ghats. However, their special distribution is characterized by a strong tendency of concentration in certain areas of the Eastern Ghats. The distribution patterns of tribal show two distinct tracts of their concentration in the Eastern Ghats region, such as South-Western tract and North-Eastern tract. The South-Western tract consists of the hilly tracts of undivided Koraput, Phulbani, parts of Ganjam and

Kalahandi. The North-Eastern tract consists of the Districts of Mayurbhanj, Kendujhar, Sundargarh and parts of Sambalpur. All these areas are located at a height of 400 mts. above the sea level. The concentration of tribal population shows their clear association with the geographical factors like hilly and forest tracts and high attitude where they find the habitats suitable to their primitive living. Beauties of nature have been conductive to their socio-cultural practices, age old customs, traditional beliefs and socio-cultural identity.

The tribal communities have been classified into three major categories based on their level of development (Patnaik 1985). They are:

(1) 16-backwardtribes living in partially isolated pockets and carrying on shifting cultivation as their main source of livelihood.

(2) 20-peasant like tribes living mixed with other castes and tribes, and depending largely on sedentary cultivation influenced by monetized economy, and

(3) Semi-urbanized and industrialized tribes living in and around urban centres, industrial and mining areas and making their living by such occupations as settle agriculture and wage earning.

The tribes such as the Santhal, Bhumija, Bhuiyan, Ho, Kolha and the Bathudi are found concentrated in the hilly areas of Mayurbhanj and Kendujhar Districts. The Koya, Gadaba and the Dharua are mostly found in Malkangiri District. The Savar or Lodha are found in the Sambalpur and Kalahandi Districts. The Bagata and Paraja are found in concentration in Nawarangpur District. Gajapati, Rayagada, parts of Puri, Cuttack and Sambalpur Districts have a good proportion of Savar and Saura tribes. There are some tribes whose number are very few, they are the Madia, Mankiridia, Kharia, Ghara, Dasia Bhumija, Juang, Tharua, Bagata, Birhor, Baiga and the Chenchu whose number range from (1000 to less than even 500) (Government of Odisha).

Basing on the population 12 tribes can recognized as major tribes in Odisha. They are as such, Kondh, Gond, Santhal, Saura, Munda, Paraja, Bhuiyan, Kisan, Oraon, Koya and Gadaba. Kondhs are found in undivided Koraput, Phulbani, Kalahandi, Ganjam and Balangir Districts. Besides, they are also found more or less in all the District.

Tribal of Odisha are simple, honest and hospitable but since time immemorial they are economically exploited, physically oppressed, socially segregated and culturally isolated (Govt. of Odisha 1990).

1.3.1 The Kondhs and their Homeland

The Kondh, famous in anthropological world for their Mariah (human sacrifice) cult, however the practice has been stopped since long after Government intervention. The three main sections (Dongria, Kutia, Desia) are distributed southwest of Odisha in the Districts of Ganjam, Koraput and Phulbani. They also live in Srikakulam and Visakhapatnam Districts of Andhra Pradesh. Numbering close to one million, they are the seventh largest tribe in India and the largest of the 62 tribes of Odisha. Almost sixty percent of the people in Phulbani District belongs to this tribe; because of their predominance in this area, it is also called Kandhamal (Daspattnaik 1990). The Kondhs consider themselves as the original inhabitants of the soil; according to them "this is our land, the earth is our mother and we always appease her by regularly worshiping because she provides us food". Boal (1982) however, thinks that they are not the autochthonous and came to present land from the plains during the Aryan advance many centuries ago.

The name Kondh has its origin in the root 'Ko' or 'Ku' which signifies only mountain. The Telugu 'Kodu' corresponds to the Sanskrit Konda, though Konda in Telugu signifies only mountain & not mountaineers. The Odia aspirate the final decision hence the name is often spelt Kondh or Kandh. Some anthropologists report them as Kondh and some as Kond. These different names stand for one and the

same tribe. We shall, however, adopt the spelling 'Kondh' in the present study. They speak 'Kui' a dialect of the Dravidian origin. It is distinct from Oriya, an Indo-Aryan language, which is spoken by their neighbour, the people of Odisha. As a result of their interaction with the Odias, they have also learnt their language. (Daspattnaik 1990).

The Kondhs are divided into three sub-tribes because of inhabiting different habitats and eco-niches; The Kondhs living in the Niamgiri hills of Koraput are shifting cultivators and are commonly known as the **Dongria**. The Kondhs living in Belghar and G. Udayagiri region of Phulbani are widely known as the **Kutia**. Both these sub-tribes have been declared as the vulnerable communities (out of the total 13 in Odisha) by the Government. The third section of the tribe is Desia-Kondh commonly referred as the **Kondh**, living mostly in Ganjam District. They represent the Hinduized section of the tribe are settled agriculturist. Because of living in different habitats, difference in economic organizations and customs have naturally noticed among the three groups. Although each group is endogamous, intermarriages between them are not rare. Response to change also varies those staying in very remote areas, which are still inaccessible, the pristine customs and practices survive.

The Kondh have racial affinity with Proto-Australoid stock. They have dark brown to nearly black skin, medium stature, broad nose and broad head.

As stated earlier there are three types of Kondhs inhabiting in different areas of Odisha. But the **Kondhs of Ganjam District** have been selected for the present study.

1.3.2 Distribution of the Kondhs in Ganjam

The District Ganjam is one of the 30th District of Odisha. It spreads over an area of 8070.6 sq. km. and has a population of 2,704,000 according to 1991 census (35 lakhs in 2011). The District has 3 Subdivisions, 12 Tehsils and 22 Blocks, the Headquarters being Chhatarpur.

Out of the total population of Ganjam District 4,84,000 belong to Scheduled Caste and 79,000 are Scheduled Tribes. The population density is 335 per sq. km. with a sex ratio of 1006 females per 1000 males.

The Kondhs of Ganjam are distributed in two Blocks namely Kukudahandi and Chikiti. Both these Blocks come under Berhampur Subdivision. Most of the Gram panchayats of Kukudahandi Blocks are inhabited by these Kondhs. The population of Kukudahandi Block as per 1991 Census is 1,05,372 out of which the Kondh has a population of 5,186, about 5% of the total population of the Block.

Like Kukudahandi, Chikiti Block also has some Gram Panchayats in which the Kondhs live in. Out of total population of the Block the Kondhs constitute hardly 2000 in number which is about 3% of the total Block population.

1.4 Area and the People under Study

The present study is based on the empirical observation in some selected Kondh village (Table-1) of Kukudahandi Block of Ganjam District. These villages are situated at south-west direction from the Berhampur town.

The villages for the present purpose have been selected keeping Berhampur as the base of the study area. Almost all villages are situated at West and South-West direction from Berhampur. The nearest village Tamana is situated at a distance of 10 kilometres from Berhampur and the farthest village Sarkat is situated at distance of 21 kilometres from Berhampur.

These Kondhs are divided into two categories (for this study) on the basis of the situation of the villages such as **the Roadside Kondh (RK) and the Interior Kondh (IK).**

The Roadside villages which are selected for the present study are Bandhaguda, Belpada, Bikashpur, Baniamari, Kankia, Khandalabandha, Kumbhajhari, Bhagabanpur, Jiniguda, Luchapada, Purunapatna, Tamana (Table-1). All the above villages are situated between 10 meters to 30 meters above the sea level.

The Interior villages which are selected for the study are Baliaput, Bhaliaguda, Betajhari, Budhigam, Budhalundi, Dhipaguda, Krantiguda, Lundriguda, Kolkata, Nuagam, Munighara, Ramapalli, Ramaguda, Sarkat, Sarabadi, Ramadiha (i.e. Madhuri) and Mitrapur (Table-1). These villages are situated at a height of 100-300 meters above the sea level.

This region comprises of a wide, open plateau fringed by the forest and hills with high peaks. River Bahuda flows through this area and joins the Sea (Bay of Bengal) near the coast of Andhra Pradesh. Besides, there are so many streams and natural drains which flow to the Bay of Bengal near Ganjam, South of Chilika Lake.

The climate is equable, though the hilly region and plateaus have extremes. One year may be divided into four seasons. Summer from March to May, rainy season from June to September, post monsoon season from October to November and winter from December to February, in summer season May is hottest month and the maximum temperature in the region various between 34° C to 40° C. The average temperature becomes around 25° C with the onset of monsoon. The December is the coldest Month the average temperature during this season comes down to 10° C to 12° C. Rainfall occurs between June and September with an annual average 129.6 cm. Major part of the rainfall remains confined to the monsoon period. After the rainy season the winter sets in; the atmosphere becomes dry and cool and the climate becomes pleasant. During this period the hills remain clothed with luxuriant green vegetation.

The tropical climate with fair amount of rainfall, diversified topography and hilly terrain of the study areas have supported a rich forest over it. Although the main mass of vegetation belongs to the tropical deciduous type. There are two different types of vegetation (Patro & Panda 1994).

a) The Northern Tropical Semi-evergreen Forest

These are found in high altitudes above 600 mts. on the hills and plateau under moist conditions. The important genus met with are Mangifera indica (mango), Diospyros embryopteris (maker kendu), Michelia champaca (champak), Dillenia pentagyna (rai), Eleusine coracana (mandia), Mesua ferrea (Nageswara), Saraca indica (Asoka) and Calamus guru a (kata beta). Besides these important wild plants, Teak plantation has been raised with success and is being commercially exploited.

(b) The Northern Tropical Moist Deciduous Forest

The greater part of the region is covered with tropical moist deciduous forest. This is very often called monsoon forest or wet mixed deciduous forest. The important species found here are Shores robust (Sal), Terminalia tomentosa (asana), Pterocarpus marsupium (bijou), Adina cardifolia (Kuruma), Xylia xylocarpa (Kangada) Angeisus latifolia (dharua), Dalbergia Latifolia (sisoo) and Gmelina arboreae (gambhari).

These forests are commonly associated with Dendrocalamus strictus (Salia Bansa) and bambusa arundinaceae (Kanta Bansa). Terminalia chebula (harida used in tanneries), Diospyros melanoxylon (kendu, leaf used for making bidi). Rauwolfia serpentine (patalgaruda used for snake bite), Tamarindus indica (tamarind), Caryota urens (sago palm, locally known as salapa, a kind of liquor is collected from the which is consumed heavily by the Kondhs), and Bassia latifolia (Mahua, the fleshy corolla is used for preparing a powerful liquor).

The forest of the study region has many wild animals. They include tiger, leopard, deer, wild pig, bear, hyaena, wolf, wild dog, fox, jackal, weasel and others. Besides these animals, spotted deer, bison, sambar, barking deer, mouse deer and elephant are also found.

As mentioned earlier the tribal people those are predominantly found in the study region are the Desia Kondhs, widely known as the Kondh Tribe. The Kondhs have racial affinity with Proto-Australoid

stock. The complexion of these Kondhs varied from light brown to brown. The colour of hair is dark brown. They have board nose and broad head. They are medium statured people with medium physic.

The Kondhs are very simple and speak the Kui dialect but most of them understand Odia, the language of the State. The Kondhs of the Ganjam District follow the Hinduized fashion of putting on cloth. The males put on dhoti and shirts. The women like to wear various coloured sarees. Red and blue are their favourite colours. Young women are fond of printed sarees.

The ornaments are either made of silver or gold or brass. The ladies fix hair pins in their bun. They use bangles and necklaces of coloured beads. Some of them are using nose and earrings made of gold on both the nostrils.

The Kondhs live in low roofed houses. The house is constructed on a rectangular ground plan with a low height. The lay-out of a house generally consists and near verandas a bedroom in the centre and a small kitchen. Walls are made up of wooden plank or bamboo plastered with mud. Houses in two opposite rows face each other.

These Kondhs are predominantly agriculturist, they live near towns and those do not have their own land they work as wage labour. Wage earning is a secondary source of livelihood for the Kondhs. They use the forest resources to supplement their income from agriculture and horticulture. The agricultural implements are also rude and old. Very rarely they use the so-called modern implements.

The annual cycle of their total economy is centred around agriculture and forest produce. They grow maize, millet, corn and pulses. The Kondhs do not worry too much about their financial crises for managing their family. They usually have their kitchen gardens. Besides the above, they also collect jack fruit, mango, banana, orange, tamarind, custard apple and many other fruits grow wildly on the hill sides.

In the Interior areas exchange is done mostly by barter system. Weekly markets are also held in some selected located places. The Kondhs use to go to these markets from the nearby villages and sell their produce from their kitchen gardens, forest and agriculture. They also purchase their daily household requirements from these weekly markets.

The Kondh family is mostly nuclear and patrilineal. During the earlier time there were village head men, they were elected on hereditary basis. But now there is no hereditary system now a days the village head man is elected by the villagers.

The institution of marriage is the major cultural mechanism meant to ensure the continuation of the family and other groups based on kinship. Every institution is a closely organized network of interwoven folk ways, mores and laws, designed to encompass one or more distinct functions. The Marriage rituals among the Kondhs are quite interesting. The Kondhs though in the process of assimilation, still they follow the rule of clan exogamy and abide by the community norms. They still follow the practice of marriage, similar to that of the Hindu neighbours, so far as entertainment of guests and feasts are concerned.

The Kondhs are pantheistic and worship the Sun, the Earth, Forest, Mountain, Fire and Home deity. Besides these, they also worship the Goddess of Smallpox and Kali Devi.

The festivals are linked with various phases of their agriculture for better yield of crop. The Kondhs in addition to their traditional festivals, also observe some Hindu festivals such as Laxmi Puja, Sibaratri, Ram-Navami, Holi, Kali puja etc. In a recent development they have stopped sacrificing animals and offering liquor to their deities.

When there is a death, the body is usually cremated. The Kondhs immerse the remains bones in the nearby streams; they do not cremate children but bury them in the ground. They observe death pollution

and rituals for 10 days. Feasts are also given to the villagers on such occasions, (Patnaik 1989)

As regards the above, there are no significant difference between the Interior (highland) Kondh (IK) and Roadside (plainland) Kondh (RK). It would be interesting to study the comparative nutritional status and demographic profiles among these two sub-sections of the Kondhs with almost similar cultural practices and ecosystems.

1.5 Design of Research

The present empirical study is confined to some selected Kondh villages of Ganjam District of Odisha. Such types of studies have been concerned with describing the features of a community either qualitatively or quantitatively or by both. Therefore, the present study comes under the design of descriptive or exploratory study.

According to Selltiz et. al. (1976) "One may study the peoples of a community, their age distribution, national or racial background, the amount of education they have, the list could be extended indefinitely". Hence, there should not be any other opinion regarding the type of the present study. Comparison between two groups of the same population are made for better results and finally some necessary descriptive hypotheses are also tested to know the cause and effect relationship which would help the researchers to undertake an experimental research in future.

1.5.1 Aims and Objectives

Objectives outlined are such that no item of the data would go a waste from the point of research as well as for planning and evaluation. Therefore, objectives are fixed before understanding any study, which enables to proceed in the desired direction. Further, it gives a clear picture of what is to be done and helps in building the appropriate structure of the study.

In the present study an attempt has been made to fulfil the following objectives.

(a) To find out the Socio-economic condition and educational standard of the selected villagers among the two Kondh sections.

(b) To find out the dietary habits among the Kondhs.

(c) To find out the nutritional anthropometry among the Kondhs.

(d) To find out the population structure and composition of the selected Kondh villages.

(e) To find out the family composition and family planning practices among the Kondhs.

(f) To find out the fertility and mortality pattern of the Kondhs.

(g) Finally, to find out whether there is any impact of nutritional status on the demographic components of the Kondhs by testing the necessary descriptive hypotheses.

1.5.2 Descriptive Hypothesis

The present work emphasizes to find out various nutritional and demographic features of both section of the Kondhs and attempts are made to test some important descriptive hypotheses.

(1) The higher the calorie intake the better is the weight for height ratio and the vice versa.

(2) The higher the calorie intake the better is the weight for age ratio and the vice versa.

(3) The higher the calorie intake the higher is the fertility and the vice versa.

(4) The higher the calorie intake the lower is the mortality and the vice versa.

1.5.3 Methods of Study

Anthropologists follow different methods for the collection of empirical data in the field. About field study, Madge (1950) observed that in social sciences we are at present more concern with methods

which avoid conflict with the basic rules and orientation of all sciences. Herskovits (1974) has described that see as much as you can participate whenever you are permitted to do so and compound your experience by discussing them formally with caution as widely as you are able. One of the various methods available to correct data according to Herskovits, is mixing with people as one of them and collecting data by direct observation both during day and night. hence it is necessary, that a researcher should pitch his tent or find out a house where he/she can be very close to the people. He/she should gain the confidence of his/her respondents.

As regards the scientific methods for any study, Lundberg (1942) has remarked that the term scientific is applied to a particular field, which consist of systematic observation of data. The above said principles have been taken to account for the present study.

The first approach to nutritional survey is based on quality and quantity of food intake and so also on several body measurements. Body measurements analysis plays an important role in determining nutritional status. The external morphology of the body, an expression of nutrition is the end-product not only of recent feeding experience of the individual but from birth onwards and even possibly from the time of conception.

So far as demographic studies are concerned, the use of statistics is inseparable. To quote S.N. Agrawal (1960) the first approach to demographic studies is based on statistical analysis of the components of population, its growth and distribution. Further, Kendall (1972) has rightly stated that statistical methods deal with data obtained by counting or measuring properties of population or natural phenomena. Therefore, statistical techniques are the vital parts for demographic studies.

In order to make the study scientific and analytical, researcher has taken the help of some specific techniques and methods for such

studies. They are, observation method, interview methods and statistical methods etc.

Observation, particularly non-participant, is one of the suitable methods for investigation. Details of the situation is confined by the interviewer through this method. Questionnaire with interview techniques were mainly followed for the present study. Non-participant observation method as mentioned earlier, was mainly adopted for the collection of various other related information. Further, to measure fertility and mortality level, various statistical method was adopted.

An interview may be defined as an effective informal verbal or non-verbal conversation initiated for specific purpose focused on certain planed areas.

Interview was conducted by the help of a structured schedule which is formulated after a pilot test. Beside structured interview, unstructured interview, unstructured interview was also conducted. The family diet survey was conducted following the principal of systematic random sampling from a sample of 30% households to estimate the family dietary intake by one day weighment method following the guidelines of Dr. Swaminathan. For nutritional anthropometry (height and weight) adult Kondhs between the age of 15 to 49 years were contacted. Measurements were taken by the help of a well set anthropometer and a well verified weighing machine.

The following schedules were prepared for collection of required data.

(1) Household census schedule.

(2) Schedule for dietary pattern and nutritional anthropometry.

(3) Schedule for fertility and family planning.

(4) Schedule for mortality and morbidity.

1.5.4 Data Collection

Data were collected by canvassing the schedules, adopted for the present study, the specimen copies of the above schedules have been given in the appendix.

For the present study data regarding the nutritional status and demographic nature of the population were collected during the field work in the month of November 1994 to March 1995.

The respondents were interviewed personally by the researcher herself at their leisure time. The information was recorded there and then by asking questions in the same order to the respondents. Basic information regarding the village was collected from the village head men as and when available. Both husband and wife in the households were interviewed. The questions were mostly directed towards the head of the households; at times, however, only the wife was interviewed in order to get information about fertility data, dietary habits etc. Data were also collected through discussion with various government officials.

The collection of data about nutritional status and demographic components were made by canvassing the structured schedules.

The total enumeration was done by door to door basis. The researchers took the help of village Headmen, School teachers, Anganwadi teachers, Sarpanches and sometimes help was taken from the village elites on the basis of their availability.

The response to investigation for the present study was reasonably satisfactory in its overall perspective, except for a few obvious limitations tribal tried to avoid the interview in many instances. As a result of this authors took the help of some educated Kondh persons who understood the importance of the study, for clarifying the villagers.

There are 564 households belong to Roadside Kondhs and 451 belong to Interior Kondhs of the selected villages (Table-2). As large as

519 (92%) households from the Roadside and 412 (91%) households from the Interior villages could be covered for household and demographic survey. The members of the remaining households were not present during researchers visit to the villages (even after three times visits to some villages) and hence are categorized under 'no response' category. The family diet survey and the nutritional anthropometry were conducted on a random systematic basis from a sample of 30% households from each section. However, data on nutritional anthropometry were collected from the normal adult individuals between 15 to 49 years of age from selected households (Table-2).

1.5.5 Processing of Data and Tabulation

After the completion of data collection, processing of data has been done. For assessing the nutritional status of the people, two techniques, dietary survey and nutritional anthropometry have been employed by the researchers.

For the present purpose, first the amount of raw food stuffs consumed by the family members either weekly or monthly have been recorded and from that daily consumption is calculated. The per unit consumption has been estimated from the family's diet by the use of consumption coefficients based on the guidelines of Dr. Swaminathan. The average intake of each food stuffs in gram per adult consumption unit per day is calculated for each family. The calorie values of various food stuffs have been calculated from the food comparison table as published by ICMR, "Nutritive Value of Indian Foods". The results have been compared with ICMR recommended allowances.

Second, data on height and weight have been processed and calculation of average values of the above measurements are estimated between males and females. The nutritional grades are calculated according to weight for age and weight for height using ICMR standards.

Various demographic features in a comparative way have also been presented in this study. Several fertility measures have been

calculated using on various statistical methods. Likewise, various standard statistical analysis on mortality rates have been made. Bi-variate and multi-variate tables have also been used in the present study for extensive analysis of data and to test the descriptive hypotheses.

After the completion of tabulation and other statistical calculations, analysis was made and thus the first draft was prepared. After the necessary correction of the first draft, the help of a computer was taken for prefinal drafting. Required graphs and figures are also done by the help of the computer. Finally, after the verification of the entire manuscript on the computer screen, the final printing has been done.

Table 1.1: Villages, Households and the Distance from Berhampur

Name of the Gram panchayats	Roadside Villages		Interior Villages	
	Name of the Villages	Distance from Berhampur	Name of the Villages	Distance from Berhampur
Kankia	Kankia (50)	12	Baliaput (17)	14
	Khandalabandha (27)	15	Bhaliaguda (19)	18
	Baniamari (28)	14	Betajhari (24)	17
	Purunapatna (48)	13	Koilikote (23)	19
	Bikashpur (107)	12	Lundriguda (35)	15
			Mitrapur (34)	20
			Nuagam (12)	17
			Ramadiha (Madhuri) (43)	15
			Ramp ally (28)	17
			Sarkat (40)	21
			Sarabadi (10)	18
Banthapali	Jiniguda (52)	14	Krantiguda (28)	16
	Luchapada (18)	13	Ramaguda (24)	21
	Bandhaguda (17)	12	Dhipaguda (30)	18
	Belpada (35)	15		

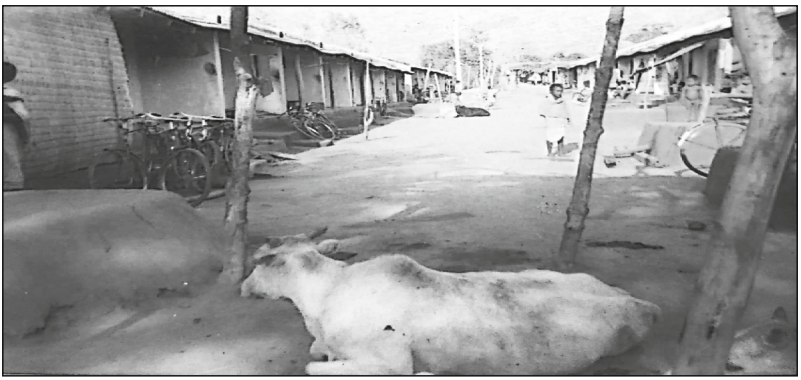
Name of the Gram panchayats	Roadside Villages		Interior Villages	
	Name of the Villages	Distance from Berhampur	Name of the Villages	Distance from Berhampur
Mahuda			Budhigam (41)	19
			Munighara (15)	17
Bali pada	Kumbhajhari (69)	14		
Lakhimpur	Bhagabanpur (30)	13	Budhalundi (28)	14
Sihala	Tamana (83)	10		
Total-	**12 villages (564)**		**17 villages (451)**	

(Figures in the brackets show the number of households present in each village.)

Table 1.2: Distribution and Coverage of Households.

Sl. No	Habitation of Kondh	Number of villages	Total household present	Total coverage for household survey		Total coverage for dietary survey	
				No.	%	No.	%
1	Roadside (plainland)	12	564	519	92	170	30
2	Interior (highland)	17	451	412	91	135	30

1.1- Kankia- A Roadside advanced Kondh village



1.2- Bikashpur, a Roadside village adopted by Gram Vikas, (a leading N.G.O)

1.3-Bhagabanpur, a Roadside village near Dakhinpur water Reservoir

1.4 - Tamana, a Roadside Advanced Village (adopted by Gram Vikas)

1.5-Jiniguda, Roadside Village

1.6-Luchapada, a Roadside Village

1.7-Bandhaguda – A Roadside village
(Note the Busy Researcher)

1.8- Belpada – A Roadside village
Note the Traditional houses being Replaced by the Pucca houses

1.9-Kumbhajhari – A Roadside village
Note the Traditional houses being Replaced by the Pucca houses

1.10-Baliaput – An Interior village.
Note the presence of electricity.

1.11-Betajhari – An interior village
Note the presence of a tube well.

1.12-Koilikat, a very backward Interior village
Note the researchers with some of the villagers

1.13- Lundriguda, an Interior village
Note the cattle occupying the village street

1.14- Krantiguda, an Interior village
Note the presence of cycles and paddy caches

1.15-Ramaguda, an Interior village
Note the presence of tube well and a pucca house

1.16- Dhipaguda, a very backward Interior village

02 | Socio-Economic and Demographic Features

Man is a social animal and lives in society. For survival of his family members in the society as well as himself, he has to find out some way of subsistence. All over the world the ways or means of survival are different, every way is based on the environment of that area. The economic condition of the society is very much connected with traditions and festivals of the people of the society. The people sometimes divert from traditional economic life and try to adopt a different means of economy for survival. To know, whether a society is developed, undeveloped or developing, it requires the interpretation of population growth in terms of social, economic, psychological, ecological and other affecting situations.

In the history of mankind, sustained long-term economic growth, measured as increase in aggregate income or income per capita, is comparatively a recent phenomenon. The improvement of the economic conditions of nations has been associated with the Industrial Revolution, which radically transformed their economy. Social institutions and patterns of behaviour of the people were also influenced by the economic and social spheres were accompanied by several important changes in demographic trends as well (Bhende and Kantikar 1985).

In the present chapter some demographic and socio-economic characteristics of the Kondhs of the selected villages have been analysed. Further, features like education, materials status and age at marriage are discussed of both males and females.

2.1 Household Size

The family size (Household size) has been defined for the present purpose as the number of persons who were under a common roof and whose food was being catered through a single kitchen. The number of such households covered in the study are 519 for the Roadside Kondhs and 412 for the Interior Kondhs, the total population of these households are 2310 and 1779 respectively. The mean household size found to be 4.45 and 4.31 respectively. Thus, the household size among the Roadside Kondhs is slightly higher than the Interior Kondhs.

The distribution of household size of Kondhs (Table-2.1) in different categories, i.e., small, medium, large and very large, reveals that the Roadside Kondhs, have maximum number (52%) of small size families (3 or less), followed by the medium sized (4-6 members) families (39%). Whereas the Interior Kondhs have maximum numbers (53%) of medium sized families (4-6 members) followed by small sized (3 or less) families (41%). Large and very large families are relatively less among both sections which indicates that joint families less marked among the Kondhs of Ganjam.

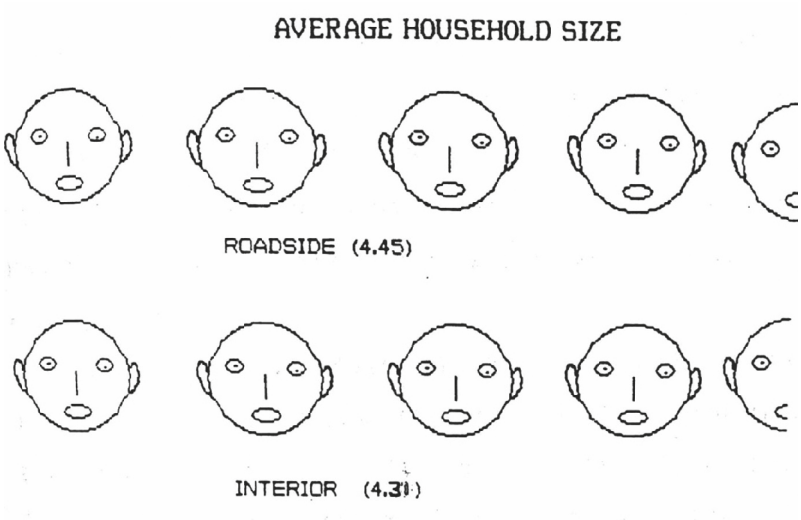
2.2 Population Composition (Age-Sex)

Population composition comprises both the composition and sex composition. The Kondh population composition has described in this sub-chapter.

2.2.1 Age Structure

The age is the basic characteristics of the biological attribute of any group and affects not only its demographic but also its social, economic and political life. Age structure also influences birth and death rates, internal and international migration, material status, manpower, gross national product, planning regarding education and medical services and housing etc. In the present study the population of both the sections of Kondhs are characterized by the typical features of backwardness and are considered as the underdeveloped communities

of the state. As we move from the younger to elder age groups, it is seen that the proportion decreases indicating young age of the Kondhs and growing trend of the population (Table-2.2). It is found from the



Age Structure of Kondhs

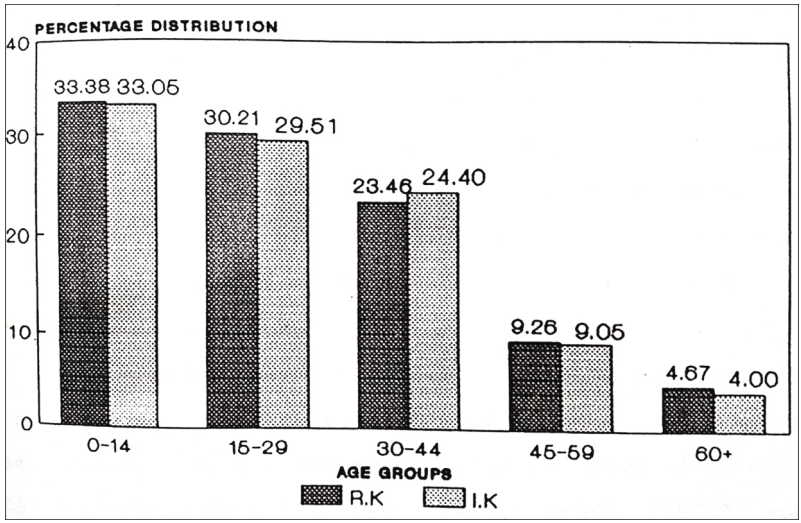


Table-2.2 that the age structures of both Roadside and Interior Kondhs are almost similar to each other. The proportion of the young children (0-14 years) is nearly 32% of the Roadside Kondhs and about 33% of the Interior Kondhs which indicate higher reproductive potential in the coming years.

The adult individuals who belongs to the fertile or the reproductive age groups (15-44) constitute the maximum proportion. [The Interior Kondhs have slightly higher (53.90%) than the Roadside Kondhs (53.68%) in both the populations, there by showing a sign of current high reproduction]. The proportion of individuals between the age group of 45-59 in both sections of the Kondhs are 9.26% and 9.05% respectively.

In the higher age group (60 and above) the number of individuals among the Roadside Kondhs (nearly 5%) is more than the Interior Kondhs (4%). This shows the longevity of life among the Roadside Kondhs than the Interior Kondhs of the Eastern Ghats. This lesser number of Kondhs in the higher age groups (60 and above) of both the sections is an indicator of poor health conditions of the Kondhs in study area.

2.2.2 Sex Composition

The sex composition is also an important indicator of fertility, family structure, marriage patterns and so on. The sex ratio, i.e. the number of males per 1000 females among both Roadside (1175) and Interior Kondhs (1078) shows the preponderance of males over females. The Roadside Kondhs exhibit a higher sex ratio as compared to the Interior Kondhs (Table 2.2). Interestingly sex ratios in all the age intervals. (except 30-4) are comparatively low among the Interior Kondhs. Above all the sex ratio of the aged group (60 and above) of both the Roadside and Interior Kondhs are lower than the other age groups. Such a lower sex ratio of this age group is due to poor health condition of the aged males. This also justifies the fact that females are biologically

stronger particularly after the menopause they live longer than their male counterparts.

2.3 Dependency Ratio

The dependency ratio of population is based on that every member of a society is a consumer and only some members are producers (Thompson and Lewis, 1965). For the present study, the age group 15-59 years is considered as the economically active population of the Kondh which is considered for calculating the dependency ratios (Table 2.3).

The child dependency ratio among the Roadside Kondhs is lower (51.44) than the Interior Kondhs i.e. 52.5 and the reverse is found in case of the aged dependency ratio (Roadside Kondh- 7.42, Interior Kondh-6.34). The corresponding figures for all India population are: 73 and 5 for child and aged dependency respectively (Jones, 1974). Among both the sections of Kondhs of the present study, the aged dependency ratio among the Roadside and Interior Kondhs are 51.44 and 52.5 respectively, comparatively lower than all India average. The total dependency ratio of the Roadside and Interior Kondhs are 58.87 and 58.83 people respectively per 100 population and that of the country is 78. Whatever the dependency ratio may be, it is observed that each of the active family members has a share in the family income. Although all active members of Kondh population contribute to the family income, they still have a hand to mouth economy. It is because that the resource available to them along with earnings are diverted towards the consumption of daily needs only.

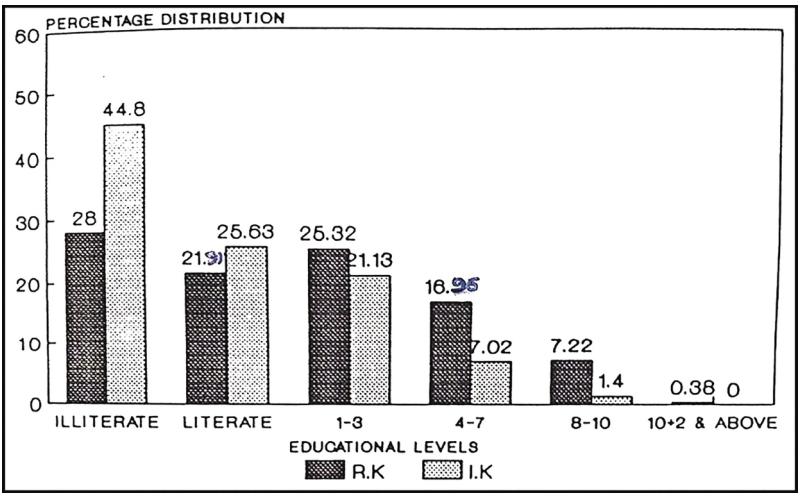
2.4 Education Standard

One of the indicators of social development is the level of literacy and educational attainment, a high level of which is considered to be an important factor is also an important variable affecting demographic behaviour concerning marriage, fertility, mortality, migration as well as participation in the labour force (Bhende and Kantikar, 1985). The

educational status of any population shows the level of development which provides an indispensable foundation for all kinds of progress. It can be stated here that the total literacy programme has been very successful in Ganjam District as declared by the Government. With such a scenario the present study shows that the Roadside Kondhs are literate up to 72% which is higher than the Interior Kondhs whose literacy percentage is nearly 55%.

In these populations the literacy among female is lower than that of the males (Table 2.4). This is, however, a common feature of all the tribes of the State. Among the literates of the Roadside Kondhs, as high as 21.71% of males and 22.13% of females have no formal education. It is obvious to observe that in this category female Kondhs are slightly higher than their male counterparts. Whereas interestingly, among the

Education Standard of the Kondhs



literates of the Interior Kondhs, as high as 28% of male and 23% of female have no formal education.

The various educational attainment standards show that the majority i.e., 27.40% males and 23.44% females and 23.62% males and 18.46% females both Roadside and Interior Kondhs respectively have

achieved primary education (class 1-3); whereas 18.75% males & 14.88% females of the Roadside Kondhs and 9.32% males and 4.56% females of the Interior Kondhs have achieved middle school (class 4-7) education. For high school education (class 8-10), there are 9.38% of males and 4.71% of female and 2.38% of males only 0.35% of females of both Roadside and Interior Kondhs respectively. Only a negligible percentage of Roadside Kondhs (0.38%) have come up to the higher secondary (+2) level, while among the Interior Kondhs there is not a single student in the higher secondary level. It reveals that the Roadside Kondhs are comparatively higher literate than the Interior Kondhs due to the easy availability of schools in plain areas.

Further, the educational attainments have been cross tabulated with the present age group of the population. It is found (table 2.4) that in both the sections of the Kondhs, the higher ages (45 and above) are associated with lower educational attainments and illiteracy whereas the relatively young age groups (15-44 years) show more literate distribution and comparatively higher educational attainments. This is evident that due to much awareness and educational developmental programmes of the Government in recent years the younger generation is more attracted towards education.

2.5 Occupation and Income

According to the concise Oxford Dictionary, occupation is defined as "a person's temporary or regular employment, a business calling or pursuit"; whereas income means, "the money or other assets received, especially periodically, in a year or in a month from one's business, lands, work, investments etc.".

2.5.1 Occupational Status

The two sections of the Kondhs are classified by their occupational categories in (table-2.5). The presence of dense forest around the village encourages a large proportion of the people to work for the collection of firewood and other forest produce especially the

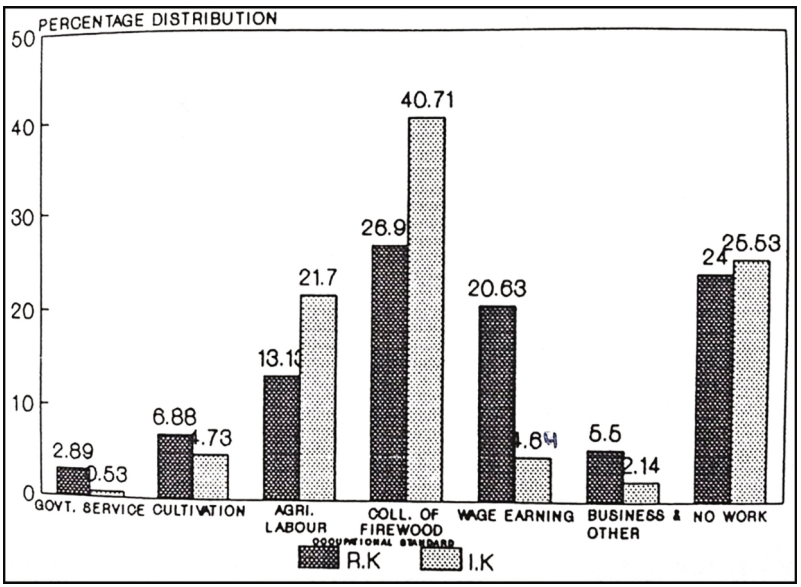
Interior Kondhs, there are no other ways to earn their livelihood. Nearly 27% of the Roadside Kondhs and 41% of the Interior Kondhs are engaged in this pursuit. Besides firewood collection the Roadside Kondhs also earn their livelihood by working as wage labours, about 21%; whereas among the Interior Kondhs, the wage population, about 3% have got government jobs, about 7% cultivate their own land, 13.13% work as agricultural labour, whereas 5% are engaged in business and other activities.

Alike Roadside Kondhs a negligible percent (0.53%) of Interior Kondhs are engaged in government services. About 5% cultivate their own land, nearly 22% work as agricultural labour, whereas only 2% maintain their livelihood through business and other activities.

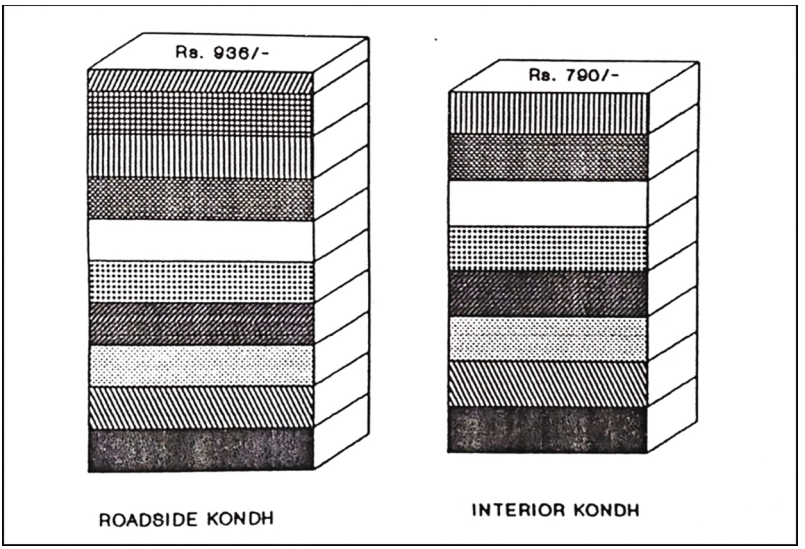
2.5.2 Income

Here the income of the family per month is considered and the households are accordingly distributed.

Distribution by Occupation



Average Monthly Income



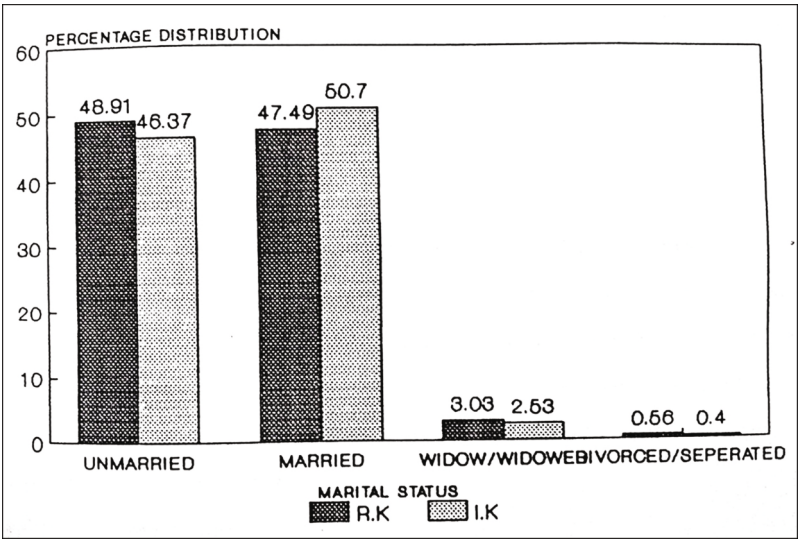
Eight different income slabs have been taken for the said purpose, the lowest being below rupees 500/- and the highest is rupees 3000/- and above. It is seen from the table 2.6 that there is a significant difference between the two sections of the Kondhs. The Roadside Kondhs show a higher family income than their Interior counterparts. The total income of the families has been recorded for computing the average income. The Roadside Kondhs have an average family income of Rs.936/- per month and the Interior Kondhs earn as an average Rs.791/- per month, which is far below the poverty line (in rural areas Rs.11,000 per year is considered as the poverty line-91). The said income is only the earning from the primary and secondary sources. Majority of the Roadside Kondhs (32.37%) earn between Rs.501/- to Rs.750/- per month, whereas maximum number of families of the Interior Kondhs earn below Rs.500/- per month.

2.6 Marital Status

Marital status of any population gives the pictures of population exposed for contributing to its growth (Dash, 1987). The marital status

distribution is an important factor affecting fertility. Other related factors, those affect fertility are the proportion of ever married persons especially females, in the reproductive age groups (15 to 44 or 49), the age at marriage, the proportion of those whose marriages have been

Distribution of Material Status



dissolved by death or divorce, their age at the time of the dissolution of the marriage etc. (Bhende and Kanitkar, 1985).

The marital status of the Kondhs at the time of survey have been recorded to know the practice of their customary laws in the society. The marital status report of all the persons included in the study has been given in table 2.7.

It is seen that over 45% of the Roadside Kondhs and 50% of the Interior Kondhs are currently married. The married persons outnumber the unmarried individual in both the sections. The widows outnumber the widowers in both the sections of the Kondhs. This shows high mortality among the aged male. Cox (1976) has also reported similar results. This is also possible because higher number of

widowers remarry compared to the widows. The divorced and separated individuals are very small in number, Roadside-0.56% and Interior-0.40%. The marital bond is unstable among the Kondhs whose customary laws have a provision for remarriage.

2.7 Age at First Marriage

The age at marriage is an important factor in marital studies, which plays a very crucial role in the determination of fertility of the community, therefore, there is a great need of such studies both quantitatively and qualitatively (Srivastav 1988).

In the present study maximum marriages (nearly 51%) of the Roadside Kondhs males are performed in the age group of 20-24 years and in case of females about 76% in the age group 15-19 years; whereas among the Interior Kondhs, the maximum marriages have occurred in the age group of 15-19 years, irrespective of sex i.e. male is 46.73% and female is 72.67% (Table-2.8). The mean age at marriage of the Roadside Kondh males is 22 years which is significantly higher that of the Interior Kondhs which is 21 years. However, the mean age at marriage of the females is about 17years & 16 years (Table-2.8) in both the sections respectively.

The average ages at marriage in Odisha as well as in India are 25 years for males and 20 years for females according to National Family Health Survey, 92-93 (IIPS 1995).

2.8 Major Findings

1. The average household size among the Roadside and Interior Kondhs are 4.45 and 4.31 respectively.
2. The mean age of the Roadside and Interior Kondhs are 25.36 and 25.04 respectively.
3. The Sex Ratio of the Roadside Kondhs is 1175 (1175 males per 1000 females) whereas it is 1078 (1078 males per 1000 females) among the Interior Kondhs.
4. The dependency ratio among the Roadside and Interior Kondhs are 58.87 and 58.83 (per 100 individuals) respectively.

5. The literacy rates among the Roadside and Interior Kondhs are 72.1% and 55.2% respectively.
6. The average monthly family income among the Roadside and Interior Kondhs are Rs.936/- and Rs.790/- respectively.
7. Majority of the Kondhs of both selections earn their livelihood by the collection of firewood from the nearby forest.
8. Over 51% of the Roadside and 53% of the Interior Kondhs are currently married.
9. The average male age at marriage among the Roadside and Interior Kondhs are 22 years and 21 years respectively.

The average female age at marriage among the Roadside and Interior Kondhs are nearly 17 years and 16 years respectively.

Table-2.1: Distribution of Household by Different Size

Size		Small 3 or less	Medium 4-6	Large 7-9	Very large 10 or more	Total	Average household size
	RK	270	203	43	3	519	4.45
	IK	167	220	25	-	412	4.31

Table-2.2: Population by Age and Sex and Sex Ratio

Age group	Number of Male		Number of Female		Total		Sex Ratio M/F x 1000	
	RK	IK	RK	IK	RK	IK	RK	IK
0-14	396 (17.14)	301 (16.91)	352 (15.23)	287 (16.13)	748 (32.38)	588 (33.05)	1125	1078
15-29	380 (16.45)	282 (15.85)	318 (13.76)	243 (13.65)	698 (30.21)	525 (29.51)	1195	1160
30-44	292 (12.69)	237 (13.32)	250 (10.82)	197 (11.07)	542 (23.46)	434 (24.40)	1168	1203
45-59	128 (5.54)	81 (4.55)	86 (3.72)	80 (4.50)	214 (9.26)	161 (9.05)	1488	1013
60+	52 (2.25)	22 (1.23)	56 (2.42)	49(2.75)	108 (4.	71 (4.00)	929	449
Total	1248 (54.02)	923 (51.88)	1062 (45.97)	856 (48.11)	2310 (100)	1779 (100)	1175	1078
Mean Age					25.36	25.04		

(Figure in the brackets show the percentage)

Table-2.3: Economic Active Population & Dependency Ratio

Age Group	Number		Percent		Type of Dependency	Ratio	
	RK	IK	RK	IK		RK	IK
Infancy childhood (0-14)	748	588	32.38	33.05	Child dependency (0-14)/ (15-59)	51.44	52.50
Earning age (15-59)	1454	1120	62.94	62.95	Aged dependency (60+)/ (15-59)	7.42	6.34
Old age (60+)	108	71	4.67	4.00	Child dependency (0-14) + (60+) / (15-59)	58.87	58.83

Table - 2.4: Distribution of Literates by Age, Sex and Educational Standard

Age in Years	Sex	Illiterate		Literate		1-3		4-7		8-10		10+2 & above		Total	
		RK	IK	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK
0-14	M	111	118	107	82	113	77	63	24	2	-	-	-	396	301
	F	127	142	113	49	93	82	19	14	-	-	-	-	352	287
15-29	M	49	85	64	81	111	69	84	35	65	12	7	-	380	282
	F	75	108	53	79	74	40	77	13	37	3	2	-	318	243
30-44	M	52	84	65	66	83	58	59	19	33	10	-	-	292	237
	F	65	107	46	55	69	26	57	9	13	-	-	-	250	197
45-59	M	36	42	23	22	29	12	24	5	16	-	-	-	128	81
	F	52	57	18	13	11	7	5	3	-	-	-	-	86	80
60+	M	29	11	12	6	6	2	4	3	1	-	-	-	52	22
	F	49	43	5	3	2	3	-	-	-	-	-	-	56	49
Total	**M**	**277 (22.2)**	**340 (36.84)**	**271 (21.71)**	**257 (27.84)**	**342 (27.4)**	**218 (23.62)**	**234 (18.75)**	**86 (9.32)**	**117 (9.38)**	**22 (2.38)**	7 (0.56)	-(0.00)	**1248 (100)**	**923 (100)**
	F	**368 (34.65)**	**457 (53.39)**	**235 (22.13**	**199 (23.25)**	**249 (23.44)**	**158 (18.46)**	**158 (14.88)**	**39 (4.56)**	**50 (4.71)**	**3 (0.35)**	**2 (0.19)**	**-(0.00)**	**1062 (100)**	**856 (100)**
Grand Total	N	645	797	506	456	591	376	392	125	167	25	9	-	2310 (100)	1779 (100)
	%		28.00	44.80	21.51	25.63	25.32	21.13	16.56	7.02	7.23	1.40	0.38	-	

Table-2.5: Distribution of Population Primary & Secondary Occupation

Name of the Occupation	Primary Occupation				Secondary Occupation				Total (Primary Occupation)		Total (Secondary Occupation)	
	Male		Female		Male		Female					
	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK
Govt. Service	38	6	4	0	0	0	0	0	42 (2.89)	06 (0.53)	06 (0.00)	00 (0.00)
Cultivation	100	53	0	0	63	24	2	0	100 (6.88)	53 (4.73)	65 (4.47)	24 (2.14)
Agri. Labourer	85	113	106	130	20	51	57	86	191 (13.13)	243 (21.70)	77 (5.30)	137 (12.23)
Collection of firewood	188	222	204	234	27	109	45	78	392 (26.97)	456 (40.71)	72 (4.95)	187 (16.70)
Wage labourer	128	33	172	90	36	18	62	13	300 (20.63)	52 (4.64)	98 (6.74)	31 (2.77)
Business & other	64	19	16	5	43	9	3	0	80 (5.50)	24 (2.14)	46 (3.16)	9 (0.80)
Total Work	**603**	**446**	**502**	**459**	**189**	**211**	**169**	**177**	**1105 (76.00)**	**834 (74.46)**	**358 (24.62)**	**388 (34.64)**
No work / No respond	197	157	152	129	611	392	485	340	349 (24.00)	286 (25.53)	1096 (75.38)	732 (65.36)
Total economic active population	**800 (55.02)**	**603 (53.84)**	**654 (44.98)**	**588 (46.16)**	**800 (55.02)**	**603 (53.84)**	**654 (44.98)**	**517 (46.16)**	**1454 (100)**	**1120 (100)**	**1454 (100)**	**1120 (100)**

(Figure in brackets show percentage)

Table 2.6: Distribution of Family Income

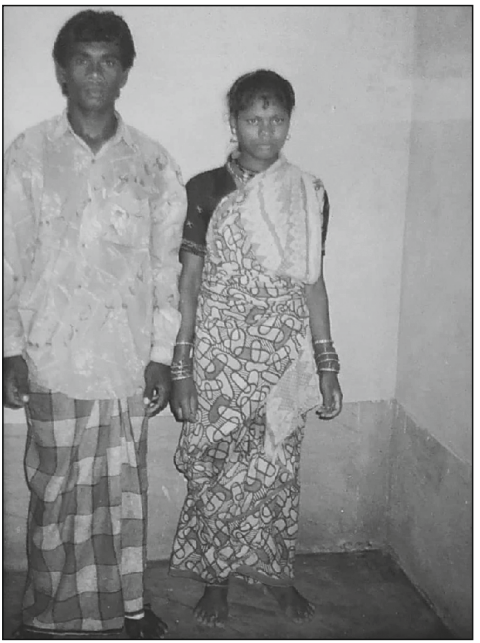
Income range	Number of Families		Percentage	
	RK	IK	RK	IK
Below 500/-	123	175	23.70	42.47
501-750/-	168	77	32.37	18.69
751-1000/-	96	64	18.50	15.53
1001-1500/-	41	36	7.90	8.73
1501-2000/-	34	28	6.55	6.80
2001-2500/-	18	15	3.47	3.64
2501-3000/-	24	11	4.62	2.67
3000 and above	15	6	2.90	1.45
Total	**519**	**412**	**(100)**	**(100)**
Avg. Monthly Income	Rs. 936/	Rs. 790/-		

Table 2.7: Distribution of Marital Status

Age in Years	Sex	Unmarried		Married		Widowed /Widower		Divorced/ Separated		Total	
		RK	IK	RK	IK	RK	IK	RK	IK	RK	IK
0-14	M	396	301	0	0	0	0	0	0	396	301
	F	352	287	0	0	0	0	0	0	352	287
15-29	M	200	118	180	164	0	0	0	0	380	282
	F	102	72	209	168	4	3	3	0	318	243
30-44	M	78	44	211	191	3	2	0	0	292	237
	F	2	3	233	180	10	10	5	4	250	197
45-59	M	0	0	122	77	6	4	0	0	128	81
	F	0	0	76	73	6	4	4	3	86	80
60+	M	0	0	32	18	20	4	0	0	52	22
	F	0	0	34	31	21	18	1	0	56	49
Total	**M**	**674**	**463**	**545**	**450**	**29**	**10**	**0**	**0**	**1248**	**923**
	F	**456**	**362**	**552**	**452**	**41**	**35**	**13**	**7**	**1062**	**856**
Percentage	M	29.18	26.02	23.59	25.30	1.26	0.56	0	0	54.03	51.88
	F	19.74	20.35	23.90	25.40	1.77	1.79	0.56	0.40	45.97	48.12
Grand Total -		**1130**	**825**	**1097**	**902**	**70**	**45**	**13**	**7**	**2310**	**1779**
Percentage		**48.91**	**46.37**	**47.49**	**50.70**	**3.03**	**2.35**	**0.56**	**0.40**	**(100)**	**(100)**

Table 2.8: Age at First Marriage & Mean Age

Age at Marriage	Number of Males		Number of Females	
	RK	IK	RK	IK
Below 15	-	-	91 (15.01)	97 (16.63)
15-19	177 (30.83)	215 (46.73)	460 (75.90)	359 (72.67)
20-24	293 (51.04)	178 (38.70)	47 (7.75)	34 (6.88)
25-29	76 (13.24)	51 (11.08)	8 (1.32)	4 (0.80)
30+	28 (4.87)	16 (3.47)	-	-
Total	**574 (100)**	**460 (100)**	**606 (100)**	**494 (100)**
Mean age at First Marriage	22.10	21.06	17.26	16.49



2.1- A newly married couple
Note the bride with traditional ornaments

2.2- A nuclear family, very common among Kondhs.

2.3- Members of a Joint family sharing a common hearth, A rare among Kondhs.

2.4- A young Kondh woman pulling water from a traditional well in a Roadside village

2.5- Village women ready for firewood collection, a common Practice

2.6- Firewood bundles are ready for selling

03 | Nutritional Status

Good nutrition for people of all ages, for health maintenance as well as restoration of health is an economic, political and humanitarian concern. It is also the common denominator for healthy life, growth of mind & body. The nutritional status of a country on macro level, and in different strata of the population, production and distribution of food, nutritional knowledge of the population, purchasing power of the masses and various other socio-economic factors (Robinsons 1972).

Nutrition refers to the processes in the body for making use of food. It signifies a dynamic process in which the food that is consumed is utilized for nourishing the body. According to the Indian Council of Medical Research (ICMR), nutrition is the science of food, the nutrients and other substances there in; their action; interaction and balance in relationship to health and disease; the process of by which the organism ingests, absorbs, transports and utilizes nutrients and disposes their end products. In addition, nutrition must be concerned with social, economic cultural and psychological implication of food and eating (Robinson 1972).

It is well known that nutrition has a profound effect at every stage of our life from prenatal stage to extreme old age. It plays a vital role in determining our longevity. It deals with the entire process of growth, maintenance and repair of the living organs as related to the intake of food. Health influences man's all activities and shape his destiny. It is solid foundation on which man's happiness rest (Sahu 1982). Studies on growth and development are essential, as they are indicators of a Nations health, especially these are of paramount importance to the

developing countries like India where protein and calorie malnutrition is a public health problem. Economic conditions of the people and the micro-environmental condition of the area where they live are the most vital factors that influence growth. Besides genetical and environmental factors, the pattern of growth and the physical state of the body are profoundly influenced by diet and nutrition for assessing the nutritional status of a person, nutritional anthropometry is one among the several methods. Nutritional anthropometry means growth relating to the nutrition. Anthropometry is one of the indicators of general health and nutritional status of an individual.

As stated earlier in (Chapter-1) two methods have been chosen for the present study for assessing the nutritional status of an individual i.e. dietary survey and nutritional anthropometry. This chapter discusses the food habits, daily food consumption and calorie values of the Kondhs of Ganjam. Above all are comes under the factor dietary survey. The per unit consumption was estimated from the food intake of various families by use of dietary consumption coefficients. Besides this, the nutritional grades (nutritional anthropometry) are calculated according to weight for age and weight for height using ICMR standard.

3.1 Dietary Survey

Dietary survey constitutes an essential part of any complete study of nutritional status of individuals or groups, providing essential information on food habits, attitudes, consumption unit, daily consumption etc.

3.1.1 Adult Consumption Unit (ACU)

Since families vary in size and consist of persons of different age groups the calculation of the diets consumed per head of the family will not yield accurate data. In order to overcome this difficulty, the results should be expressed in terms of 'Adult Consumption Units' (Swaminathan, 1988). The adult consumption units for persons of varying ages are given in table 3.1.

It is seen from the Table-3.1 that, among the Roadside Kondhs, the children constitute 33.18%, adolescent population constitute 23.39%, adults 38.13% and aged population constitute 5.30%. Whereas among the Interior Kondhs the children, adolescents, adults and the aged constitutes the 26.71%, 21.79%, 47.64% and 3.90% respectively. For the present purpose male and female adults have been categorized as moderate and heavy workers respectively. As per ICMR standard both moderate male worker and heavy female worker should consume 1.2 adult units. Various consumption coefficients are used for the calculation of the average adult consumption units, which are found to be 4.77 and 4.47 for the Roadside Kondhs and Interior Kondhs respectively, Table- 3.1.

3.1.2 Food habits and average daily consumption

It is well recognized that the food habits of the people of a particular area are guided by the local condition of soil, climate, the density of the population, local customs and traditions relating to food consumption, food preparation, food taboos, food distribution etc. Therefore, the food intake pattern is different in different population or in different habitats (Sabat and Dash 1995).

Kondhs have very irregular food habits, they eat whatever food is available, sometimes they just fill their stomach by eatable forest produce, like wild fruits and roots, and wild animals which they obtain by hunting. Staple food articles taken by them vary with the different seasons. Hence the diet of the Kondhs is based on the availability of food, further they do not follow a regular dietary schedule.

The average daily consumption of different food items, adult consumption and the calorie values of these food have been present in Table-3.2. In the present study the calorie value of different types of food which is consumed by the Roadside Kondhs as well as the Interior Kondhs are calculated through a dietary chart. From the dietary chart the actual family consumption (in grams), the average adult

consumption unit per family are calculated. The average adult consumption (in grams) is calculated by dividing the actual consumption of the families and the adult consumption unit per the family (Table- 3.2).

Main constituents of tribal diet are the cereals. Different cereals taken by the Kondhs are *rice (Oryza Sativa), maize (Zea mays), kangu (Sefaria italic), swan millets (Panicum millare) and ragi (Elusina coracana).* Ragi is the chief constituents of porridge which is consumed by most of the Interior Kondhs and some of the poor families of the Roadside Kondhs. Only better off families can afford to eat rice every day. The average adult allowances of cereals taken by an adult Roadside Kondhs and an adult Interior Kondhs are 480.74 grams and 440.80 grams respectively in comparison to ICMR recommended allowances i.e. 475 grams (table 3.2). Roadside Kondhs consume slightly more and the Interior Kondhs take less cereals.

The average daily intake of pulses of an adult Roadside Kondhs is 21.96 grams and 23.61 grams. consumed by an adult Interior Kondhs. Though the Interior Kondhs have no idea about nutritious food, the consumption of pulses is higher than that of the Roadside Kondhs. But the value consumed by either section of the Kondhs is much less than the ICMR recommended allowances i.e. 80 grams. The most important pulses which are taken mostly by the Kondhs are red gram *(Cajanus Cajan), horse gram (Dolichos biflorus), green gram (Phaseolus sadiatus) and cow gram (Vigna catiang)* but less frequently.

Kondhs take a lot of green leafy vegetables but not frequently i.e. whenever available. Like pulses, the consumption of leafy vegetables is also higher in case of the Interior Kondhs (46.30gms.) then the Roadside Kondhs (35.63 grams). But the average daily consumption of leafy vegetables of both sections of the Kondhs is less than the ICMR value i.e. 125 grams. The different leafy vegetable taken by them are. Pumpkin *leaves (Cucurbita maxima), drumstick leaves (Moringa oleifera),*

banamadaranga (Alternanthera sessillis), cabbage (Brassica oleracea), Bengal gram leaves (Cicer arientum) and others.

Other vegetables consumption as regards the nutritional requirements is no way satisfactory. But the rich families having kitchen gardens grow a variety of vegetables which are consumed by them. The consumption of other vegetables by an adult Roadside Kondh is 35.69 grams, whereas an adult Interior Kondhs consume 29.02 grams. It is seen from the above analysis that the average intake of other vegetables by both the sections of the Kondhs are less than the ICMR recommended value, i.e. 75 grams. Other vegetables consumed by the Kondhs are brinjal *(Solanum melongena), pumpkin (Cucurbita maxima), papaya green (Carioca papaya), drumstick (Moringa oleifera), green plantain (Musa sapientum) etc.*

Roots and tubers taken by Kondhs are potato *(Solanum tuberosum), yam ordinary (Thyhonium trilobatum), onion (Allium cepa), reddish (Raphanus sativus) etc. The Interior Kondhs consume roots and tubers mostly collected from the forest. These include Olio Kand, Pitch Kand, Colocasia etc.* and the intake is 34.11 grams in case of a Roadside Kondhs and 26.87 grams consumed by an Interior Kondhs which is far below then the ICMR recommended allowance i.e. 100 grams.

The intake of milk and milk products among these Kondhs is almost nil. Milk is a rare food item and cows are not regularly mulched. Even tea is not taken by some Kondhs. Rarely it is taken at weekly markets or in towns by the Roadside Kondhs. Whereas milk is completely avoided by the Interior Kondhs and there is a superstition regarding the avoidance of milk. Children are breast fed for about one year after which they are given ragi porridge or rice paste. The average intake of milk by an adult Roadside Kondh is (6.37 grams) far less than the ICMR level i.e. 100 grams.

The non-vegetarian food include meat, fish, chicken etc. Meat and fish are consumed occasionally or on festival days. If an animal or

bird is hunted, the meet is shared with other households. The Kondhs take chicken, mutton and the meat of wild animals. They are very fond of dried fish. It is interesting to observe that eggs are rarely eaten as those are left for hatching. The average adult consumptions of meat and fish by the Roadside Kondhs as well as by the Interior Kondhs are found to be very less (8.89 and 6.90 grams respectively) than that of the ICMR required allowance, i.e. 30 grams.

All available seasonal fruits are taken by Kondhs i.e. banana *(Musa paradisaic) papaya ripe (Carica papaya), mango (Mangifera indica), Jack fruit (Artocarpus heterophyllus), guava (Pisidium guajava), custard apple (Annona squamosa), all types of berries, tomato ripe, (Lycopersicum esculenttum), tamarind pulp (Tamarindus indicus) etc.* [Swaminathan (1988) has included these two items under fruit]. The mean intake of fruits by the Roadside as well Interior Kondhs (11.87 grams and 9.30 grams) are less than the recommended level (30 grams).

Very less quantity of oil is consumed by Kondhs. Limited number of families of Interior Kondhs under investigation used oil for cooking, which is also below the recommended level i.e. 40 grams (Roadside is 2.87 grams and Interior is 1.50 grams). Most common oil used by Kondhs are *alasi* and mustard oil. Sometimes they also use castor oil. Kondhs consume sugar and jiggery infrequently.

The average quantity of sugar and jaggery consumed by adult Roadside and Interior Kondhs are 5.84 grams and 3.01 grams per head respectively which is far below the ICMR accepted value, (40 grams).

Liquor plays a vital role in tribal life. Among the Kondhs, liquor is not socially prohibited. It is consumed by both sexes. They feel that liquor is an energetic stimulant which breaks monotony and a food which satisfies the starving belly. Kondhs consume a lot of country liquor *Mohua (Bassia latifolia) and salapa (Caryota urens)* are the common liquor. It is taken four to five times a week. The Roadside Kondhs consume on an average 40 grams. Whereas the Interior Kondhs take nearly 53 grams of such liquor per day.

The average Kondh diet consists primary of cereals and pulses which mostly determine their calorie intake. In order to find, whether persons suffer from under or malnutrition, it is important to find out the calorific requirement and intake.

A calorie is a measure of energy supplied by the food taken. Calorific needs vary with age, sex, weight, physical activities and environment in which the human being live in. Even if the body is at rest, it needs a certain amount of energy for essential function such as respiration, circulation, excretion and maintenance of body temperature etc. (Sharma 1979).

It is found from the present study that the average calorie intake of an adult Roadside Kondh is 1890 kcal and an adult Interior Kondh is 1730 kcal, Table-3.2. These values have been calculated from the staple diet of the Kondhs. The total calorie requirement for an adult moderate working male and hardworking female are recommended by ICMR is 2800 (ICMR 94). This indicates that Kondhs are undernourished with respect to the calorie value of the food articles. Although both sections are undernourished as per the ICMR standards, the Roadside Kondhs are better off than the Interior Kondhs.

The diet chart (Table-3.2) shows that the Kondh diet is inadequate according to the accepted standards. It is different both quantitatively as well as qualitatively. Such an unbalanced diet is found, affect the nutritional anthropometry of the Kondhs.

3.2 Nutritional Anthropometry

Both genetic and environmental factors influence the growth and development of any individual and in the process the community a whole. Among the environmental factors, which influences the health of a community, nutrition is the most important determinant. In fact, the growth status of an individual is generally accepted as a good index of this nutritional status of the community (Mahadevan and Gopalan 1981)

Besides diet survey, the nutritional anthropometry is another factor which assesses the nutritional status of an individual. In this

study the nutritional anthropometry is also applied to find out the general health and nutritional status of the Kondhs.

Anthropometric data collected on individuals as part of diet and nutrition survey both in the Roadside villages as well as in the Interior villages. The sample comprises 30% households from each section, total 354 adult Roadside Kondhs (173 males and 181 females) and 279 adults Interior Kondhs (140 males and 139 females) in the age group of 20 to 49 years for males and 15 to 49 years for females. Two measurement namely height and weight have been collected with the help of a well verified anthropometer rods and a recommended standard weighing machine to evaluate the nutritional status.

The nutritional grades are calculated according to weight for height and weight for age, using ICMR standards to assess the nutritional status of the adult individuals of the two sections.

3.2.1 Weight for Height

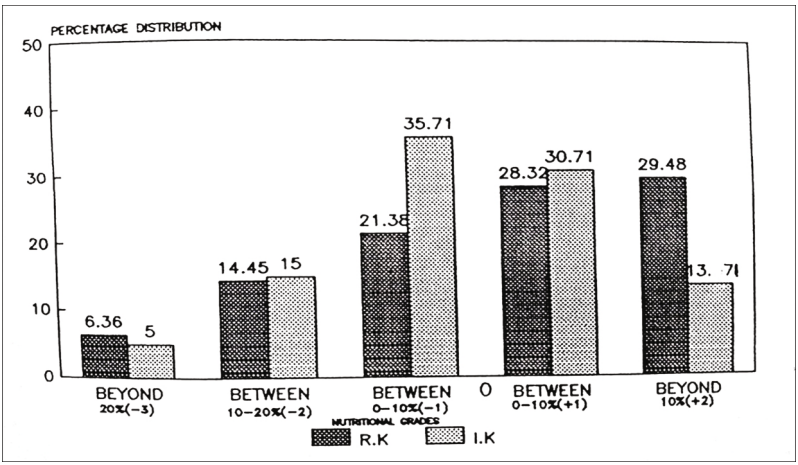
Weight for height is utilized for assessing the nutritional status of an individual to comprehend the incidence of malnourished cases. The distribution of individuals according to different grades of nutritional status have been observed for both adult males and females of the Roadside as well as of the Interior Kondhs (Table-3.3 and Table- 3.4). The distribution of weight for height classification (male) shows that, a higher percentage of male, about 29% are lie, beyond 10% above the ICMR standard. About 36% of adult Interior male Kondhs are found between 0-10% below the ICMR standard while 21% of adult Roadside male Kondhs are notified in the same category. It is observed that the incidence of beyond 20% below the ICMR standard category in both the sections is almost equal (i.e. 6% in Roadside Kondhs and 5% in Interior Kondhs).

Among the females, a majority of the Roadside Kondhs (36.46%) as well as Interior Kondhs (42.44%) found between 10%-20% below the ICMR standard. Although the Interior female Kondhs are backward

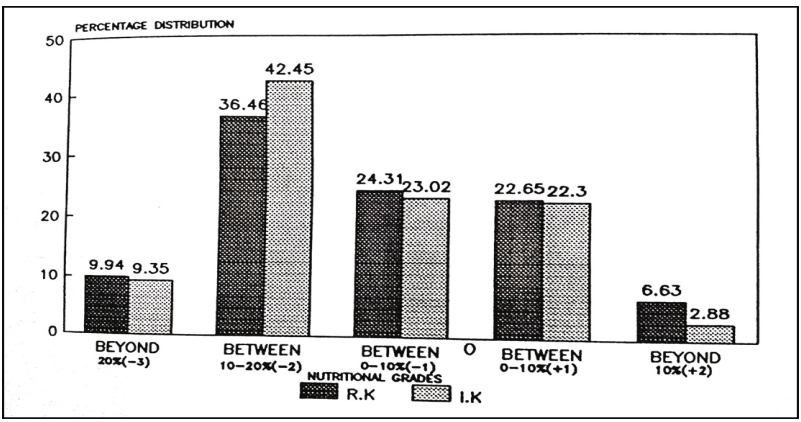
than the Roadside female Kondhs the distribution of percentage of different categories is almost same.

The mean heights of adult male Roadside Kondhs and Interior Kondhs are 158.85 cm and 158.75 cm respectively. While the mean height of an adult female Roadside Kondhs is 150.57 cm. and an adult female Interior Kondhs is 149.91 cm. Howover, the mean weights of the RK and IK male are 54.6 kg & 53.7 kg and those of the female are 48.4 kg and 47.6 kg respectively.

Weight for Height (Males)



Weight for Height (Females)



It is found from the above analysis that the individuals of Interior sections do not have much different in height measurement from the individual of Roadside sections.

The weight for height in the present study shows that, almost 50% males and 47% females of the Roadside Kondhs and nearly 66% of males and 45% of females are found to be in the normal range (considering '+1 and '-1' grades as normal range). About 21% of male and 46% females of the Roadside Kondhs and 20% of males and 52% of females of the Interior Kondhs are under weight ('-3' and '-2') whereas nearly 29% of males and 7% of females and 14% of males and 3% of females of the both sections are above weight (+2) as per ICMR standard respectively. This analysis clearly shows that a higher proportion of females in both sections are below the ICMR standard. However, the Roadside Kondhs are slightly better off than the Interior Kondhs.

It is clearly observed that the higher calorie intake is related to the better weight for height. It can be stated here that the Roadside Kondhs have higher calorie intake in comparison to their Interior counterparts. Hence, they have better weight for height ratio than the Interior Kondhs. So, the first hypothesis, 'the higher the calorie intake the better is the weight for height ratio and the vice versa', is thus justified.

3.2.2 Weight for Age

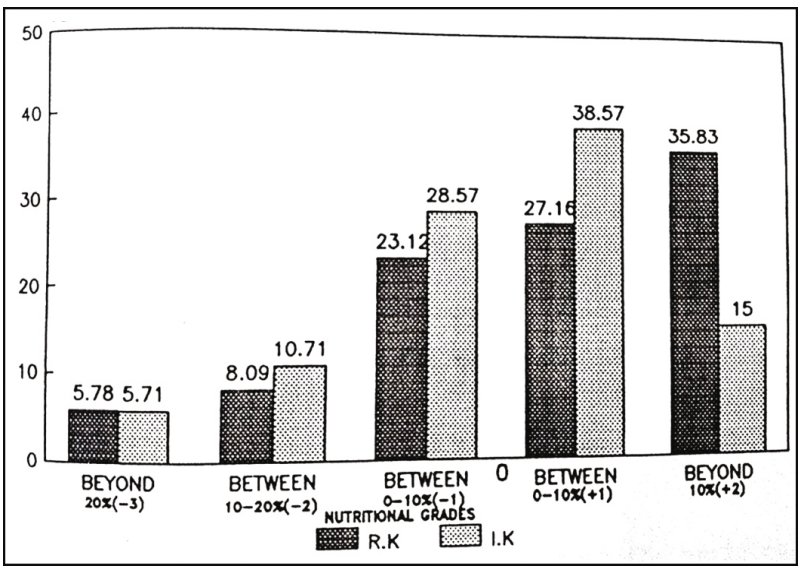
The weight of adult individuals of two sections belonging to age group 19 to 49 years in case of males and 15 to 49 years for female were obtained with the help of a recommended standard weighing machine. The adult individuals of both the sections are distributed according to different grades of nutritional level based upon weight for age. The findings are presented in Table-3.5 and Table-3.6.

The tables show that a high percentage of the adult males and females of both the sections (Roadside and Interior) of Kondhs are in normal range ('-1'and '+1), which means nearly 50% males and 48% females of Roadside Kondhs and about 67% males and 47% females of

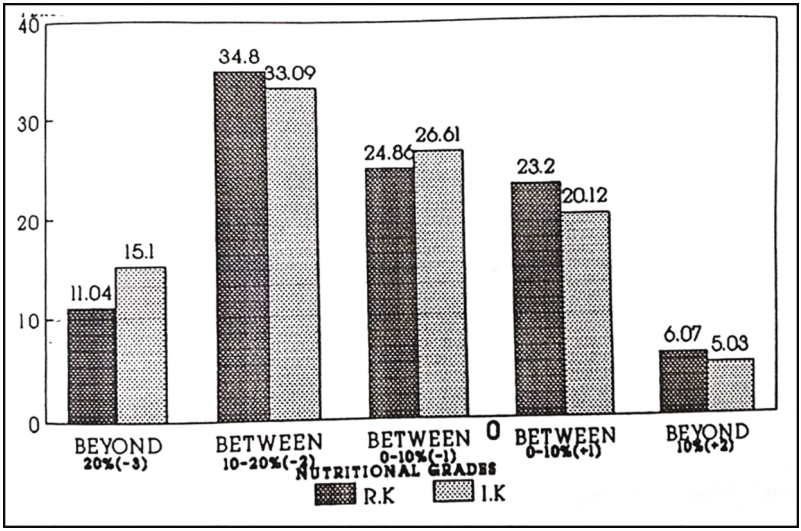
Interior Kondhs are normal as per the present study. Further 14% males and 46% females of the Roadside Kondhs while 16% males and 48% females of the Interior Kondhs are found to be below normal. The study also reveals that 36% males and 6% females of the Roadside Kondhs and 15% males and 5% females of Interior Kondhs are above normal category. Therefore, it can be said that the Roadside Kondhs are slightly better in comparison to the Interior Kondhs.

The above analysis shows that the consumption of calorie has some impact on the weight. As the Roadside Kondhs have higher calorie intake than the Interior Kondhs, they have better weight for age ratio in comparison to their Interior counterparts. So, the second hypothesis, 'the higher the calorie intake the better is the weight for age and the vice versa', is proved and accepted.

Weight for Age (Males)
Percentage Distribution



Weight for Age (Males)
Percentage Distribution



Both weight for height and weight for age measurements show that higher number of females are under weight as compared to their male counterparts in the District.

3.3 Major Findings

1. Both male and female Kondhs of the present study have been categorized as moderate worker and heavy workers respectively.
2. The average family consumption units have been calculated as 4.77 for Roadside Kondhs and 4.47 for Interior Kondhs.
3. Rice is consumed as staple food item by both the sections of Kondhs.
4. As high as 87% of calorie intake by both the sections of Kondhs is supplied by cereals.
5. Consumption of other food items are minimum whereas liquor is consumed commonly by both the sections of Kondhs, *'Mahuli' and 'Salapa'* are the liquors commonly used by the Kondhs.

6. On an average an adult Roadside and an adult Interior Kondh daily consume 1890 and 1730 kcal respectively and both are much less than the ICMR accepted standard.
7. It is found that as regards heights of male and female, both sections of Kondhs are almost same with a little variation in their weights. Therefore, the 'weight for height' and 'weight for age' measurements show that the Roadside Kondhs are slightly better compared to the Interior Kondhs. Moreover, maximum females of both the sections are under weight than their male counterparts.
8. The Roadside Kondhs have a good weight for height and weight for age ratio which are positively co-related with their calorie consumption.

* Adult male Kondhs are considered as moderate workers and females as heavy workers

Average Adult Consumption Unit (ACU) per family =

Table 3.1: Calculation of Adult Unit Coefficient (AUC) and Adult Consumption Unit (ACU) of the Roadside and Interior Kondhs of Ganjam District

Population Group	**Children** (RK-33.18%, IK-26.67%)						**Adolescents** (RK23.39%, IK-21.79%)	* **Adults** (RK-38.13%, IK-47.64%	**Aged** (RK-5.30%, IK-3.90%)	**Total Population** Total Adult Unit Coefficient (A.U.C)
Age Group	1-3		3-5	5-7	7-9	9-12	12-19	20-59	60+	-
Adult Consumption unit coefficient	0.4		0.5	0.6	0.7	0.8	1.0	1.2	0.8	-
Population in various ages	RK	44	64	59	67	54	203	331	46	868
	IK	28	30	39	39	28	134	293	24	615
Total adult consumption coefficient	RK	17.6	32	35.4	46.9	43.2	203	397.2	36.8	812.1
	IK	11.2	15	23.11	27.3	22.4	134	351.6	19.2	604.1

* Adult male Kondhs are considered as moderate workers and females as heavy workers

Average Adult Consumption Unit (ACU) per family

$$= \frac{\text{Total Family Consumption Unit}}{\text{Total Number of Families}}$$

ACU = Roadside Kondh (RK) 812.1/170 = 4.77 and Interior Kondh (IK) 604.1/135 = 4.47

Table 3.2: Average Family & Adult Consumption of different Foods per day and the Respective Calorie Values

Different Food Items	Average Family consumption in gm	Average intake of an adult Kondh		Required allowance of an adult Kondh by ICMR	
1	2	in gm. (3) = (2/ACU)	in kcal (4)	in gm. (5)	in Kcal (6) = (4x5)/3
RK	2293.13	480.74	1658.55		
Cereals				475	1650.00
IK	1970.36	440.8	1520.75		
RK	104.75	21.96	72.47		
Pulses				80	230.00
IK	105.49	23.61	77.88		
RK	169.96	35.63	24.22		
Leafy vegetable				125	70.00
IK	206.95	46.30	31.48		
RK	170.26	35.69	13.26		
Other Vegetable				75	30.00
IK	129.73	29.02	10.74		
RK	162.70	34.11	23.53		
Roots and Tubers				100	120.00
IK	120.11	26.87	18.54		
RK	30.38	6.37	4.14		
Milk				100	60.00
IK	--	--	--		
RK	42.39	8.89	11.02		

Different Food Items	Average Family consumption in gm	Average intake of an adult Kondh		Required allowance of an adult Kondh by ICMR	
1	2	in gm. (3) = (2/ACU)	in kcal (4)	in gm. (5)	in Kcal (6) = (4x5)/3
Meat and Fish				**30**	**40.00**
IK	30.86	6.9	8.56		
RK	56.63	11.87	14.72		
Fruits				30	40.00
IK	41.59	9.3	11.54		
RK	13.68	2.87	25.81		
Fat and Oils				40	390.00
IK	6.69	1.50	13.46		
RK	27.87	5.84	22.38		
Sugar and Jaggery				40	170.00
IK	13.45	3.01	11.52		
RK	188.03	39.42	19.70		
Liquor				--	--
IK	235.86	52.56	26.00		
RK	3259.78	683.39	1889.80		
Total				1095	2800.00
IK	2861.09	639.87	1730.47		

Table 3.3: Distribution of the Male Kondhs by Weight for Height

Height in cm.	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
RK	5	3	4		-	-	12
Below 150				47.5			
IK	2	5	7		-	-	14
RK	6	9	6		8	14	43
150-154				49.0			
IK	4	7	10		5	2	28
RK	-	7	13		15	10	45
155-159				51.5			
IK	1	4	20		13	4	42
RK	-	6	12		15	11	44
160-164				54.0			
IK	-	5	11		8	3	27
RK	-	-	2		8	7	17
165-169				59.0			
IK	-	-	2		15	6	23

Height in cm.	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
RK	-	-	-		3	9	12
170 and above				62.0			
IK	-	-	-		2	4	6
RK	11 (6.36)	25 (14.45)	37 (21.38)	-	49 (28.32)	51 (29.48)	173 (100)
Total							
IK	7 (5.00)	21 (15.00)	50 (35.71)	-	43 (30.71)	19 (13.71)	140 (100)

Figures in brackets indicate percentage

Table 3.4: Distribution of the Female Kondhs by Weight for Height

Height in Cm.	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
RK	-	12	1		-	-	13
Below 140				40.5			
IK	-	7	2		-	-	9
RK	5	17	6		-	-	28
140-144				43.0			
IK	4	12	2		-	-	18
RK	5	15	12		7	2	41
145-149				46.5			
IK	5	12	17		8	1	43
RK	6	17	15		15	5	58
150-154				48.5			
IK	3	19	6		10	1	39
RK	2	4	8		16	3	33
155-159				50.5			

Height in Cm.	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
IK	1	9	3		12	1	26
RK	-	1	2		3	2	8
160 and above				52.5			
IK	-	-	2		1	1	4
RK	18 (9.94)	66 (36.46)	44 (24.31)	-	41 (22.65)	12 (6.63)	181 (100)
Total							
IK	13 (9.35)	59 (42.45)	32 (23.02)	-	31 (22.30)	4 (2.88)	139 (100)

Figures in brackets indicate percentage

Table 3.5: Distribution of the Male Kondhs by Weight for Age

Age in years	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
RK	5	4	9		12	8	38
20-24				60 kg			
IK	3	2	7		9	6	27
RK	3	5	5		11	11	35
25-29				Do			
IK	2	6	8		10	3	29
RK	-	1	7		12	12	32
30-34				Do			
IK	-	3	7		16	3	29
RK	-	-	8		6	16	30
35-39				Do			
IK	-	1	9		8	6	24
RK	-	3	6		4	12	25
40-44				Do			
IK	2	2	8		8	2	22
RK	2	1	5		2	3	13
45-49				Do			

Age in years	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
IK	1	1	3		3	1	9
RK	10 (5.78)	14 (8.09)	40 (23.12)	-	47 (27.16)	62 (35.83)	173 (100)
Total							
IK	8 (5.71)	15 (10.71)	42 (28.57)	-	54 (38.57)	21 (15.00)	140 (100)

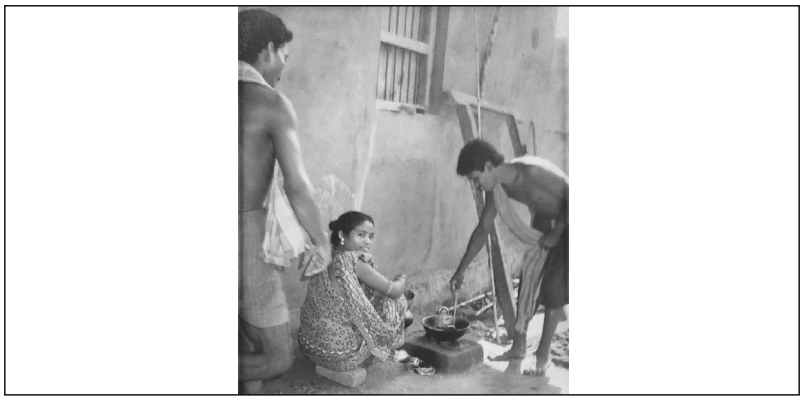
(Figures in brackets indicate percentage)

Table 3.6: Distribution of the Female Kondhs by Weight for Age

Age in Years	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
RK	6	24	5		-	-	35
15-19				49 kg			
IK	14	14	2		-	-	30
RK	4	9	8		9	2	32
20-24				50kg			
IK	3	6	10		4	1	24
RK	1	9	5		11	3	29
25-19				Do			
IK	-	7	6		4	1	18
RK	2	8	6		9	3	28
30-34				Do			
IK	-	6	8		9	2	25
RK	3	3	10		6	2	24
35-39				Do			

Age in Years	Beyond 20% Below the ICMR std.	Between 10-20% Below the ICMR std.	Between 0-10% Below the ICMR std.	Weight as per ICMR std	Between 0-10% Above the ICMR std.	Between 10% Above the ICMR std.	Total Number
	(-3)	(-2)	(-1)	0	(+1)	(+2)	
IK	1	5	6		7	2	21
RK	2	7	9		4	1	23
40-44				Do			
IK	3	2	4		3	1	13
RK	2	3	2		3	-	10
45-49				Do			
IK	-	6	1		1	-	8
RK	20 (11.04)	63 (34.80)	45 (24.86)	-	42 (23.20)	11 (6.07)	181 (100)
Total							
IK	21 (15.10)	46 (33.09)	37 (26.61)	-	28 (20.14)	7 (5.03)	139 (100)

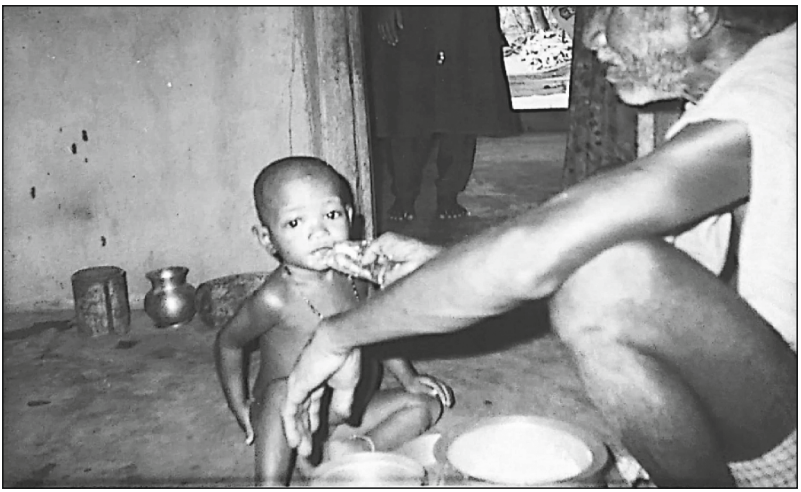
Figures in brackets indicate percentage



3.1- The Cooking place of an Interior village

3.2- The Kitchen of a Roadside village

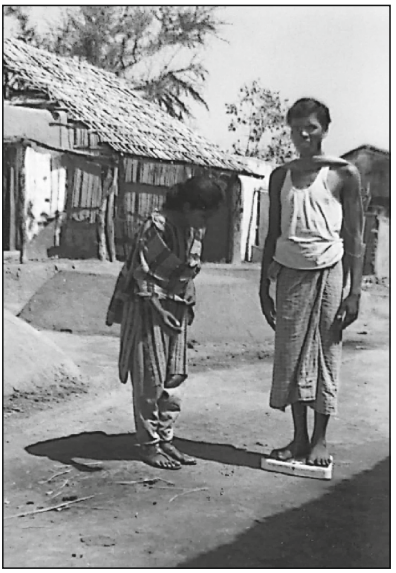
3.3- A Kondh woman busy in grinding while guarding her new-born baby
Note the presence of electricity.



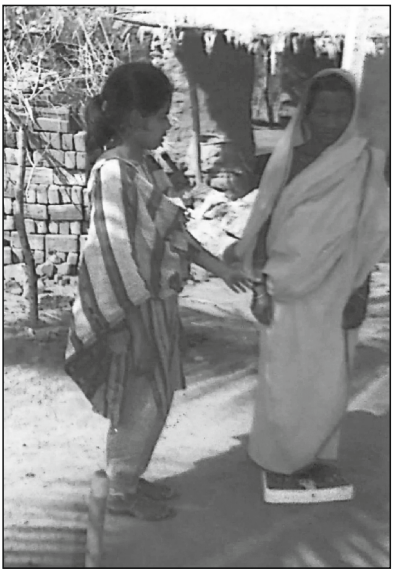
3.4 - A child is being carefully fed by his grand father

3.5 - Researcher taking the Measurement of Height

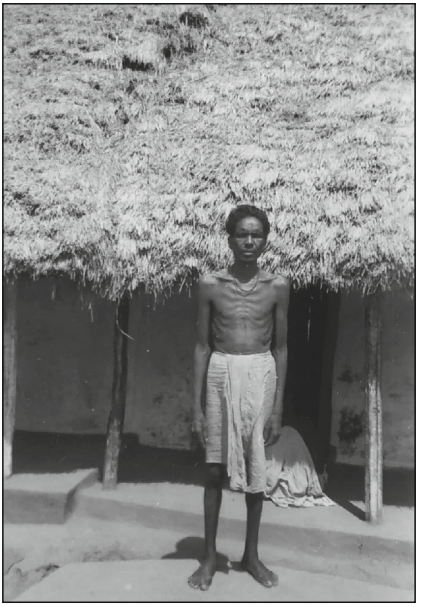
3.6 - Cooperating Woman in taking their measurements



3.7 - Recording the Weight of an Adult Kondh.



3.8 - Required Precautions before taking the Measurement.



3.9 - A Malnourished Kondh male

3.10 - A Malnourished Kondh female

04 | Fertility Behaviour

Fertility is the process through which addition or replacement is brought about in population, whereas fecundity is a biological concept, which designates the potentiality to bear a child and have no reference to whether or not a woman has actually given birth a child. Fertility refers to the actual occurrence of birth especially the live births (Cox 1969). The definition of live births as recommended by World Health Organization has been used in present paper (Hauser and Duncan 1959).

Fertility is responsible for biological replacement and for the maintenance of the given society. The growth of the population of the world depends entirely on human fertility. Thus, in population dynamic, fertility is a positive force, through which the population expands. On the other hand, excessive replacement of human numbers can also create several social and political problems (Bhende and Kanitkar 1985).

The problem of fertility reduction is no doubt complex and difficult at least in one respect, that is motivation. However, motivation on the part of couple favourable for high fertility is strongly linked with their socio-economic backwardness. Social evils like dowry system encourages couples to go for more boys than girls, which in turn, is responsible for high fertility. Besides this couples, those are generally afraid of losing their children due to prevailing high infant and child mortality, favour large number of children. For some sections of the population, the children are considered to be the economic assets for their families, and for such people the fertility is naturally found to be

high. Family system also, to some extent, is responsible for fertility behaviour. These are some of the circumstances which generate or give rise to conditions favourable for high fertility behaviour which can be controlled by promoting selective activities having fertility impact. A women reproductive period is roughly from 15 to 44 years. Besides the above factors, there are some other factors on which fertility depend upon. The highest fertility in India is attributed to universality of marriage, lower age at marriage, low level of literacy, poor level of living, limited use of contraceptive and traditional ways of life (Park and Park 1991).

In the present chapter the fertility behaviour of the Kondh women have been discussed. Further, the age parity distribution and average number of children in different age categories of women, age at first child birth, gap between age at marriage and first child birth, age at last child birth and age specific fertility have been analysed independently and comparison between the two sections of the community was also done.

4.1 Female age at First Marriage

The age at which a female marries and enters the reproductive period of life has a great impact on her fertility. It is a socio-cultural variable and has an important role in the demographic studies. Therefore, the female age at marriage of both Roadside female Kondhs and Interior female Kondhs have been analysed in this sub-section.

It is found that nearly 15% (of the Roadside Kondhs) and 20% of the Interior Kondhs of females have got married below the age of 15 years Table-4.1. However, this low age at marriage was marked among the elderly women of both the sections. Majority of the women i.e. about 76% of the Roadside Kondhs and 73% of the Interior Kondhs have got married be between 15-19 years of age (Table-4.1). But in the age between 20-24 years about 8% of the Roadside Kondhs and nearly 7% of the Interior Kondhs have got married. Very negligible proportion i.e. 1.32% of the Roadside Kondhs and only 0.80%of the

Interior Kondhs got married even above the age of 25years. It is fascinating to see that there is not much difference between the two sections as regards the age at marriage. Therefore, the average age at marriage do not show much difference between the Roadside and Interior Kondhs. The average female age at marriage of the Roadside and Interior Kondhs and are 17.26 and 16.49 years respectively. Both the Kondhs sections show almost similar age at marriage to that of the women of Odisha, which is 17 years (I.I.P.S 1995).

4.2.1 Age at first Childbirth

Normally the age of women, at first childbirth, is considered as the effective age of the beginning of the fecundity. It is found from the Table- 4.2 that there is a slight difference of the ages at first childbirth between the women of the two sections of the Kondhs. The present study shows that in all age groups majority of women of the Roadside Kondhs (50.16%) had their first child during the age of 15-19 years. Interestingly 2.42% of women of the Roadside Kondhs and Interior Kondhs had their first childbirth during the age of below 15 years. As majority of women of both the sections married between 15-19 years, the childbearing stage begins shortly after that. Total 45 women (7.42%) of Roadside Kondhs and 42 women (8.50%) of the Interior Kondhs has not shown any effective conception (conception resulting in live births). The mean ages of the women at first childbirth are 18.70 and 18.09 years of the Roadside Kondhs and the Interior Kondhs respectively (mean age at first childbirth of the State is 19 years).

4.2.2 Interval between age at marriage and age at first childbirth

Interval between age at marriage and age at first childbirth has also some impact in fertility. Therefore, interval between age at marriage and age at first childbirth of women of both the sections of Kondhs have been analysed.

It is found from the Table – 4.3 that, nearly 27% ever married women of the Roadside Kondhs and 28% ever married women of the Interior Kondhs gave birth their first child keeping an interval of below

one year from the age at marriage. Majority percentage of the women of both the sections experienced their first childbirth between 1-2 years of marriage. A small proportion of the ever-married women of both the sections, shows an interval of 6 years and above. Both the sections have almost similar age at first childbirth in respective of the age at marriage. The average gaps between the age at marriage and the age of first childbirth are 1.81 years and 1.87 years for the Roadside ever married women and the Interior ever married women respectively. It is noticed that difference with regards to the age of marriage between the two sections has no meaningful impact on the beginning of the fertility schedule.

4.3 Age at last Childbirth

Age at last childbirth is another important factor for the analysis of the fertility behaviour of any population. For analysing the age at last childbirth of women of both the sections, the women of above 45 years as well as the sterilized women have been taken into consideration (Table 4.4)

The table 4.4 reveals that nearly 39% women of the Roadside Kondhs had their last childbirth in the age of 30-34 years whereas about 42% women of the Interior Kondhs had their last childbirth in the age of 35-39 years. This is followed by 32% of women in the age of 35-39 years among the Roadside Kondhs and about 30% of women in the age of 30-34 years among the Interior Kondhs and remaining 29% of women of the Roadside Kondhs and 28% women of the Interior Kondhs had their last child birth in the age of 40-45 years. The average ages at last childbirth are 37.02 and 37.40 years among the women of the Roadside Kondhs and the Interior Kondhs respectively. This is higher in comparison to the age of last childbirth of the women of Odisha is nearly 31 years. This shows that the Kondhs have low acceptance of the terminal methods of birth control.

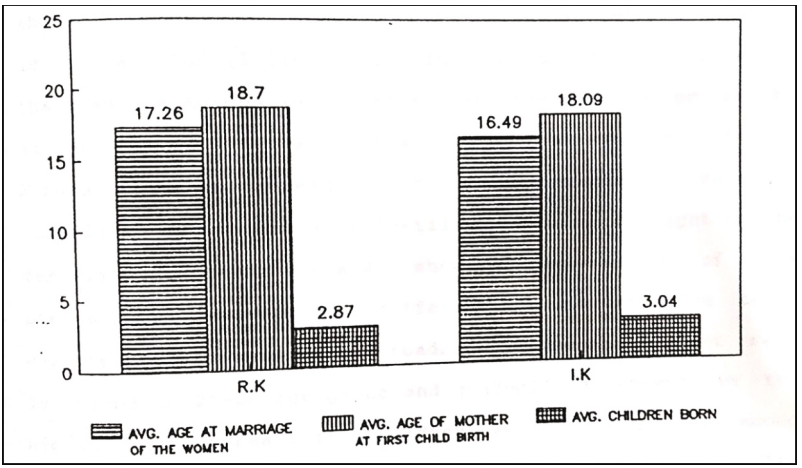
4.4 Children Ever Born

Average number of children ever born in different age categories of women are the basic findings of any demographic studies. Therefore, at the most basic level, a wide range analysis can be undertaken by using the commonly used aggregate measure of fertility: Children Ever Born (CEB), (Goldstein and Goldstein 1982).

It is found from the table (4.5) that in 'one' and 'two' children categories the women of both the sections shows almost same distribution. In 'three' children categories the women of Roadside Kondhs show more percentage (23.43%) compared to the women of the Interior Kondhs (18.21%) while in four children categories the women of the Interior Kondhs are higher (18.01%) compared to the women of Roadside Kondhs (16.66%). In remaining four categories, the Roadside Kondhs show more in two categories (i.e. six and seven) than the Interior Kondhs whereas in the other two categories (i.e. five and eight above) the Interior Kondhs have a higher percentage compared to the Roadside Kondhs.

Children ever born data are cross tabulated with the age of women in table 4.6. The average children born in every age group is also calculated. It shows that there is no such significant difference in the average children born between the two sections of the Kondhs in various age groups. It is noticed from the study that the increase in the average number of ages except in one age groups i.e. 35-39 years. The age group of 45 and above shows the highest average number of children, for Roadside Kondhs is 3.81 and for Interior Kondhs is 4.15. It is found that on an average 3 children are ever born to all ever-married women of both sections of the Kondhs. General population of the state also show a similar trend (I.I.P.S 1995).

Age at First Marriage of the Women, Age of Mother at First Childbirth & Average Children Born



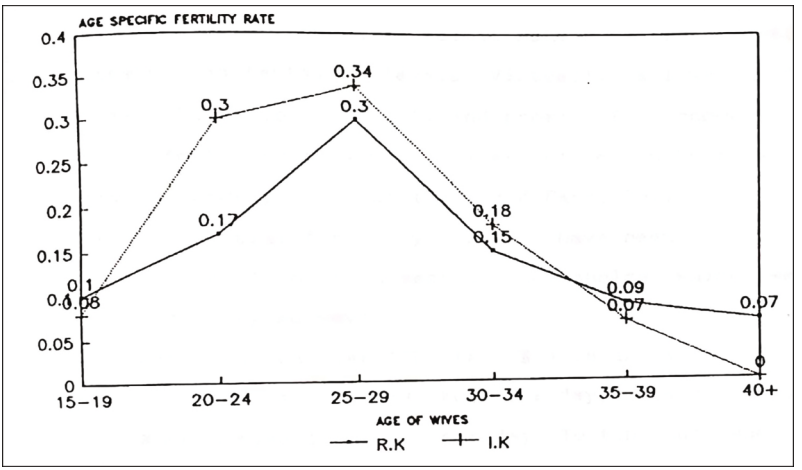
4.5 Current Fertility

The calculation of current fertility measurement of both sections of Kondhs have been analysed in this subsection.

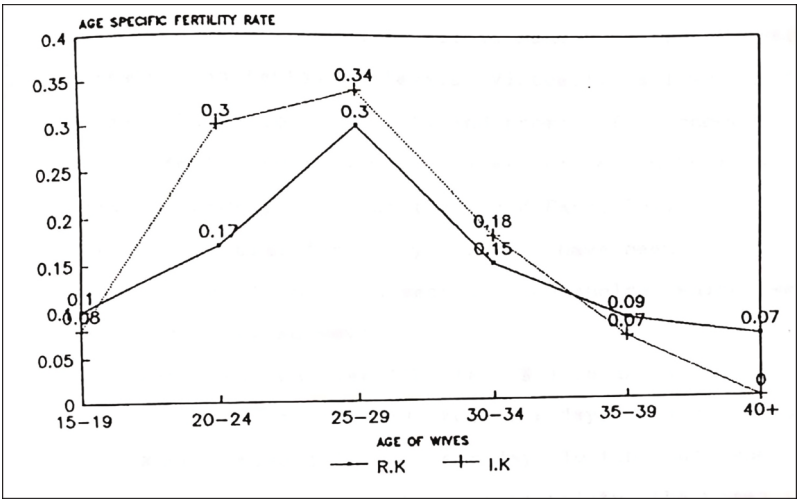
The crude birth rate (CBR) of the Roadside Kondhs is 36.79 whereas it is 41.03 for the Interior Kondhs. It is clear from the findings that the CBR of the Interior Kondhs is higher than the Roadside Kondhs. These rates of the Kondhs are quite high compared to those of the State figures which is 27 per 1000 (I.I.P.S. 1995). The general fertility rate (GFR) of the Roadside Kondhs is 149.64 and in case of the Interior Kondhs it is 165.90. This rate is also higher among the Interior Kondhs than the Roadside Kondhs. A more precise measure of fertility is age specific fertility which through light on the fertility pattern. Table-4.7 shows the distribution of live births among women under different age groups. The table reveals that in case of the Roadside Kondhs the highest rate is found in 25-29 age group and gradually decreased in the higher ages whereas, it is highest in 20-24 age group among the Interior Kondhs and also gradually decreased in the higher ages. On an average 4 children are born per woman of Roadside

Kondhs (TFR=4.4) whereas it is nearly 5 children among the Interior Kondh women (TFR=4.9). The gross reproduction rate (GRR) shows that nearly 2 girls are born to a woman of Roadside Kondhs while it is comparatively high among the Interior Kondhs nearly 3, (GRR-1.9 and 2.7 respectively).

Age Specific Fertility Rates



Age Specific Martial Fertility Rates



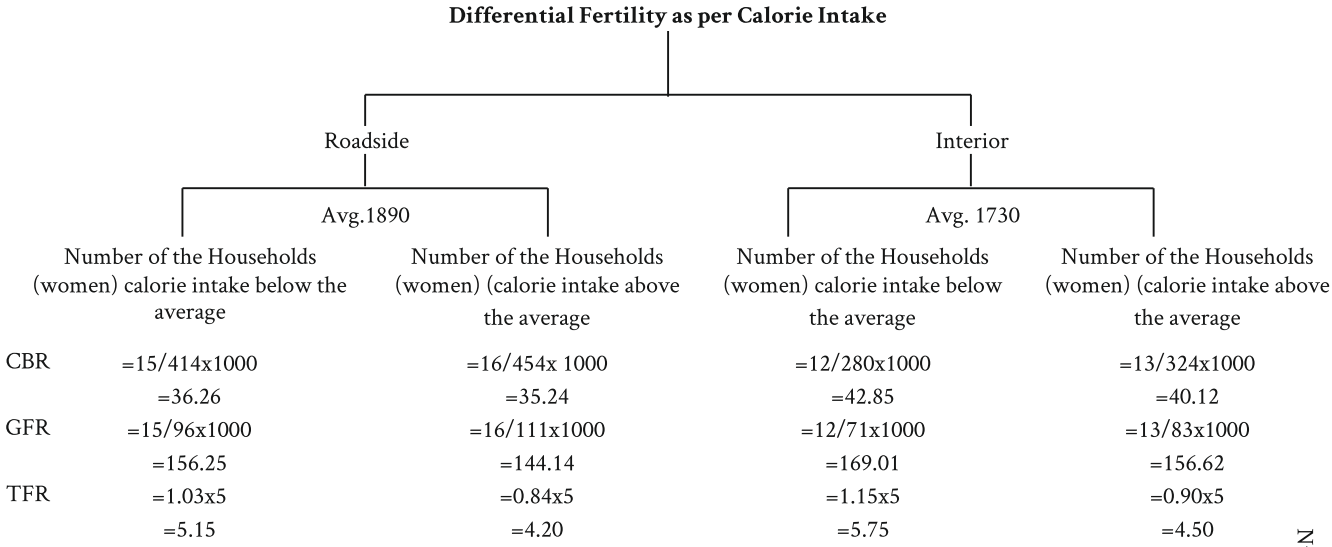
4.6 Fertility Differentials as per Calorie Intake

There appears to be some relationships between nutritional status and fertility levels. Virtually, all well- fed communities have low fertility and poorly fed communities show high fertility. However, the effect of nutrition on fertility is largely indirect (Park and Park 1991).

For differential fertility the data have been collected from 30% household of each section (households which were covered for dietary survey).

As mentioned earlier (Chapter- 3) on an average, an adult Roadside Kondhs take 1890 kcal per day whereas an adult Interior Kondhs take 1730 kcal per day. To find out if there is any impact of nutrition on fertility, the women (of 30% households) in the age group 15-44 years are differentiated into two categories for the present purpose i.e. "calorie intake below the average" (B) and "calorie intake above the average" (A). Various measurements of fertility have been found out and compared to assess the impact of nutrition on the demographic components.

The Crude Birth Rate (CBR) among both the sections of Kondhs is higher in the category "calorie intake below the average" (B) (RK=36.23 and IK is 42.85) than the category "calorie intake above the average" (A) (RK is 35.24 and IK is 40.12). The General Fertility Rate (HFR) is also high in the category "calorie intake below the average" (RK=156.25 and IK is 169.01). The age specific fertility rate show in the table 4.8 and 4.9 for both the Roadside and Interior Kondhs respectively, reveals that both the Roadside and Interior Kondhs have high fertility in the category "calorie intake below the average". On an average among the Roadside Kondhs 4 children are born per women in the "calorie intake above the average" category and 5 children are born per women in the category calorie intake below the average. Like the Roadside Kondhs, on an average 4.5 (5) children are born per woman in the category calorie intake above the average whereas 5.75 (6) children are born in the category "calorie intake below the average" per woman.


Differential Fertility as per Calorie Intake
Roadside
Interior
Avg.1890
Avg. 1730
Number of the Households (women) calorie intake below the average
Number of the Households (women) (calorie intake above the average
Number of the Households (women) calorie intake below the average
Number of the Households (women) (calorie intake above the average
CBR
=15/414x1000
=36.26
=16/454x 1000
=35.24
=12/280x1000
=42.85
=13/324x1000
=40.12
GFR
=15/96x1000
=156.25
=16/111x1000
=144.14
=12/71x1000
=169.01
=13/83x1000
=156.62
TFR
=1.03x5
=5.15
=0.84x5
=4.20
=1.15x5
=5.75
=0.90x5
=4.50

It is clearly observed from the above analysis of differential fertility that all these measurements of current fertility among both the Roadside as well as the Interior Kondhs indicate high fertility in the category "calorie intake below the average". It can be conclusively stated that fertility rates are high among those women whose consumption of calorie is below the average. Therefore, the hypothesis, 'higher the calorie intake the higher is the fertility and the vice versa", is thus rejected and not accepted.

4.7 Major Findings

1. The mean age at marriage of female Kondhs of both Roadside and Interior sections are nearly 17years and 16 years respectively.
2. The average age of women of the Roadside and Interior Kondhs at first child birth is about 19 years and 18 years respectively.
3. The average spacing between the age at marriage and age at first childbirth among the two sections of the Kondhs is about 2 years.
4. The average age of women at last childbirth among the Roadside and Interior Kondhs are 37 years and 40 years respectively.
5. The Crude Birth Rate (CBR) among the Roadside and the Interior Kondhs are 36.79 and 41.03 respectively.
6. The Total Fertility Rate (TFR) among the Roadside and Interior Kondhs are 4.4 and 4.9 respectively.
7. The Gross Reproduction Rate (GRR) among the Roadside and Interior Kondhs are 1.9 and 2.7 respectively.
8. The Net Reproduction Rate (NRR) among the Roadside and Interior Kondhs are estimated to be 1.00 and 1.50 respectively.
9. The Child Women Ratio (CWR) among the Roadside Kondhs is lessor than that of the Interior Kondhs.

Fertility measurements are relatively higher among the lower calorie intake group (the Interior Kondhs) than the higher calorie consumption group (the Roadside Kondhs).

Table 4.1: Distribution of Women by Their Age at First Marriage

Age at First Marriage										
Present Age	Below 15		15-19		20-24		25 and above		Total	
	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK
15-24	-	-	100 (16.50)	103 (20.85)	24 (3.96)	20 (4.05)	-	-	124 (20.46)	123 (24.90)
25-34	-	-	158 (16.07)	121 (24.49)	18 (2.97)	12 (2.43)	8 (1.32)	4 (0.80)	184 (30.36)	137 (27.73)
35-44	7 (1.16)	11 (2.27)	144 (23.76)	92 (18.62)	5 (0.86)	2 (0.40)	-	-	156 (25.74)	105 (21.26)
45+	84 (13.86)	86 (17.40)	58 (9.57)	43 (8.70)	-	-	-	-	142 (23.43)	129 (26.11)
Total-	91 (15.00)	97 (19.63)	460 (75.90)	359 (72.69)	47 (7.75)	34 (6.88)	8 (1.32)	4 (0.80)	606 (100)	494 (100)

(Average age at first marriage: RK=17.26 years, IK= 16.49 years)

Table 4.2: Distribution of Women by Their Age at First Birth

Age at first Childbirth						
Present Age Group	Below 15	15-19	20-24	25 +	No. live births yet	Total ever married women
RK	-	42	-	-	4	46
15-19						
IK	-	43	-	-	7	50
RK	-	48	23		7	78
20-24						
IK	-	44	22		7	73
RK	-	37	38	13	4	92
25-29						
IK	-	32	17	7	4	60
RK	-	43	21	23	5	92
30-34						
IK	-	43	17	11	6	77

Age at first Childbirth						
Present Age Group	Below 15	15-19	20-24	25 +	No. live births yet	Total ever married women
RK	-	35	34	6	6	81
35-39						
IK	-	38	14	10	4	66
RK	5	30	19	9	12	75
40-44						
IK	2	13	11	5	8	39
RK	11	69	27	28	7	142
45+						
IK	10	61	33	19	6	129
RK	16	304	162	79	45	606
Total						
IK	12	274	114	52	42	494
RK	2.64	50.16	26.73	13.03	7.42	100
%						
IK	2.42	55.46	23.07	10.52	8.50	100

(Mean age at first child birth: RK= 18.70 years, IK= 18.09 years)

Table 4.3: Interval Between Age at First Marriage and Age at First Child Birth

Age at Marriage	INTERVAL								No. live births yet	Total ever married women
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7+		
RK	-	2	34	15	13	7	3	3	14	91
0-15										
IK	-	3	37	19	10	8	4	4	12	97
RK	159	179	58	13	23	5	2	3	18	460
15-19										
IK	130	151	24	12	12	7	5	3	15	359
RK	4	8	5	7	5	4	-	1	13	47

Age at Marriage	INTERVAL								No. live births yet	Total ever married women
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7+		
20-24										
IK	2	4	2	3	3	2	3	-	15	34
RK	3	3	2	-	-	-	-	-	-	8
25-29										
IK	4	-	-	-	-	-	-	-	-	4
RK	162	192	99	35	41	16	5	7	45	606
Total										
IK	136	158	63	34	25	17	12	7	42	494
RK	27.4	31.68	16.33	5.78	6.77	2.64	0.82	1.15	7.42	(100)
%										
IK	27.53	31.98	12.75	6.88	5.06	3.44	2.43	1.42	8.50	(100)

Average interval between age at marriage and age at first childbirth: RK=1.81 years and IK= 1.87 years

Table 4.4: Age at Last Childbirth of Women 45+ and Sterilized

Age Group	Age at last Childbirth			Total ever married women	Avg. age at last Childbirth
	30-34	35-39	40-45		
RK	90	74	68	232	37.02
Women of 45+ and sterilized					
IK	49	70	47	166	37.40
RK	38.80	31.90	29.31	(100)	
%					
IK	29.52	42.17	28.31	(100)	

Table 4.5: Distribution of Ever Married Women by Number of Children Ever Born

Children ever born	RK	IK
One	95 (15.67)	70 (14.17)
Two	124 (20.46)	92 (18.62)
Three	142 (23.43)	90 (18.21)
Four	101 (16.66)	89 (18.01)
Five	49 (8.08)	65 (13.15)
Six	30 (4.95)	29 (2.87)
Seven	15 (2.47)	10 (2.02)
Eight	5 (0.82)	7 (1.41)
Zero Parity	45 (7.42)	42 (8.50)
Total ever married Women	**606 (100)**	**494 (100)**

Table 4.6: Age Parity Distribution and Average Number of Children

Present Age Group	Order of Birth									Total No. of Children	Total ever married	Avg. no. of Children
	0	1	2	3	4	5	6	7	8+			
RK	4	29	13	-	-	-	-	-	-	55	46	1.19
15-19												
IK	7	18	25	-	-	-	-	-	-	68	50	1.36
RK	7	24	26	15	6	-	-	-	-	145	78	1.85
20-24												
IK	7	26	16	16	8	-	-	-	-	138	73	1.89
RK	4	15	19	29	20	5	-	-	-	245	92	2.66
25-29												
IK	4	11	13	16	5	11	-	-	-	160	60	2.66
RK	5	7	14	34	26	5	1	-	-	272	92	2.95
30-34												
IK	6	5	10	21	24	10	-	-	-	234	77	3.03
RK	6	8	20	24	8	8	4	3	-	237	81	2.92
35-39												
IK	4	4	6	13	22	5	6	6	-	246	66	3.72

Present Age Group	Order of Birth									Total No. of Children	Total ever married	Avg. no. of Children
	0	1	2	3	4	5	6	7	8+			
RK	12	4	11	14	13	6	10	3	2	247	75	3.29
40-44												
IK	8	3	5	5	5	7	4	-	2	123	39	3.15
RK	7	8	21	26	28	25	15	9	3	542	142	3.81
45+												
IK	6	3	17	19	25	32	19	4	5	536	129	4.15
RK	45 (7.42)	95 (15.67)	124 (20.46)	142 (23.43)	101 (16.66)	49 (8.08)	30 (4.95)	15 (2.47)	5 (0.82)	1743	606 (100)	2.87
Total												
IK	42 (8.50)	70 (14.17)	92 (18.62)	90 (18.21)	89 (18.01)	65 (13.15)	29 (5.87)	10 (2.02)	7 (1.41)	1505	494 (100)	3.04

Table 4.7: Age Specific Fertility Rate (A.S.F.R)

Age Group	Total live births			Total women	Current married women	A.S.F. R	A.S.M.F. R
	Male	Female	Total				
RK	4	8	12	115	46	0.10	0.26
15-19							
IK	3	5	8	110	50	0.08	0.16
RK	11	7	18	108	75	0.17	0.24
20-24							
IK	15	9	24	81	73	0.30	0.33
RK	19	10	29	95	88	0.30	0.33
25-29							
IK	6	15	21	61	58	0.34	0.36
RK	8	6	14	94	88	0.15	0.16
30-34							
IK	7	8	15	84	72	0.18	0.20
RK	4	3	7	81	75	0.09	0.09
35-39							
IK	2	3	5	70	61	0.07	0.08
RK	2	3	5	75	70	0.07	0.07
40-44							
IK	-	-	-	43	32	-	-
RK	48	37	85	568	442	0.88	1.15
Total							
IK	33	40	73	440	346	0.97	1.13

Measurements of Fertility:

		RK	IK
1	CBR= Crude Birth Rate	36.79	41.03
2	GFR= General Fertility Rate	149.64	165.90
3	TFR= Total Fertility Rate	4.40	4.85
4	TMFR=Total Marital Fertility Rate	5.75	5.65
5	GRR= Gross Reproduction Rate	1.92	2.66
6	NRR= Net Reproduction Rate	1.00	1.50

Child Women Ratio:

a) $\frac{\text{No of Children (0-4)}}{\text{Women (15-44)}}$ x 1000= 451 495

b) $\frac{\text{No. of Children (5-9)}}{\text{Women (19-49)}}$ x 1000= 428 454

Table 4.8: Age Specific Fertility Rate as per Calorie Intake (Roadside Kondh)

Age Group	Total Live Births			Total women	A.S.F. R
	Male	Female	Total		
B	1	-	1	20	0.05
15-19					
A	2	1	3	15	0.20
B	1	1	2	22	0.09
20-24					
A	2	-	2	20	0.01
B	2	2	4	18	0.22
25-29					
A	3	1	4	29	0.14
B	1	2	3	11	0.27
30-34					
A	-	2	2	23	0.08
B	2	1	3	15	0.20
35-39					
A	2	2	4	12	0.33
B	1	1	2	10	0.2
40-44					
A	1	-	1	12	0.08
B	8	7	15	96	1.03
Total					
A	10	6	16	111	0.84

Average Calorie Intake=1890, B=Below the average, A=Above the average

Table 4.9: Age Specific Fertility Rate as per Calorie Intake (Interior Kondh)

Age Group	Total Live Births			Total women	A.S.F. R
	Male	Female	Total		
B	1	-	1	7	0.14
15-19					
A	1	1	2	11	0.18
B	1	2	3	15	0.17
20-24					
A	2	2	4	23	0.20
B	-	1	1	21	0.04
25-29					
A	1	2	3	21	0.14
B	2	1	3	10	0.30
30-34					
A	1	1	2	12	0.17
B	1	2	3	8	0.37
35-39					
A	-	1	1	8	0.12
B	-	1	1	10	0.10
40-44					
A	-	1	1	8	0.12
B	5	7	12	71	1.15
Total					
A	5	8	13	83	0.90

Average Calorie intake=1730, B=Below the average, A=Above the average

4.1- Researcher Busy in Collecting Fertility Data in an Interior Kondh village.

4.2- Collection of Data on Fertility in Roadside village.

4.3- A young Kondh mother with her Baby

4.4- Breast Feeding is a Common Practice

05 Family Planning and Composition

Every One & half Seconds a baby is born in India, it is a little more than 55,000 a day and about 21 million every year. While the birth rate is 29 per thousand and death rate is 10 per thousand showing an annual growth rate of 23%. Every year there is an addition of one crore thirty lakh souls which is more than Australia's total population. It has been estimated that if this growth rate continues the total population of India by the year 2010 would be over 130 crores which would be very close to the population of China. The main cause of the rapid population growth is not excessive births but our victory against death and disease. (Saran, 1989). However, the estimated population of India in 2021 is 139 crores (Worldometer Data).

In order to ride over the explosion of population, the Government of India in 1952 adopted an official programme of Family Planning (now Family Welfare). Family Planning and Birth control are the main issues that are intimately private and yet inspirable public because a child brought into the world has not only to be fed but housed, medically cared and given at least the minimum educational facilities. All these require huge capital for the first fifteen years of their life. Children are not expected to contribute economically to the wealth of the Nation, because they are young and immature, they are consumers rather than producers. The greatest single obstacle to the economic and social development of the majority of people in India is therefore, the rampant population growth. The increase in population has out stripped much of our developmental gains.

Thus, Birth control is very essential now-a-days because of population explosion. Therefore, family planning has become a major function of our country to reduce this high growth rate. There are several definition of family planning.

An Export Committee (1971) of the World Health Organization defined family planning as "a way of thinking and living that is adopted voluntarily, upon the basic knowledge, attitudes and responsible decision by individuals on couples in order to promote the health and welfare of the family group and thus contribute effectively to the social development of a country".

Another Export Committee defined and described family planning as follows: Family planning refers to practices that help individuals or couples to attain certain objectives.

(a) To avoid unwanted births.

(b) To bring about wanted birth.

(c) To regulate the intervals between pregnancies.

(d) To control the time at which births occur in relation to the ages of the parent and

(e) To determine the number of children in the family.

The most common method of controlling fertility is through contraceptive and intra uterine device. Apart from this, tubectomy and vasectomy among female and male respectively are also very common. As a result of this the birth rate has reduced to some extent. But these practices are not so widespread by the people of India. Various scholars have studied these problems, the important ones are those by Pearls (1939), Beebe (1942), Poricha (1957) and Agrawal (1962).

It has been found that the prevalence of use of contraceptive is directly related to the socio-economic status of the users, and it is also observed that there is positive correlation between socio-economic status and family planning method.

Considering these facts Sudha Mittal (1979) working among the women of Sagar town showed the effect of some variables like caste, income, education and age on family planning practices. Her study describe that the people of higher castes believed is mechanical devices because the level of education is generally high. On the other hand, among lower castes, the females prefer operation as a permanent method for birth control.

Working in rural areas of Bihar, Saran (1989) has described that there are number of social and cultural barriers as well as individual fears which are serving as a great stumbling Block to the adoption of birth control measures.

Here, in this chapter, an attempt has been made to study how far these practices are accepted by the Kondhs of Eastern Gats. Besides the family planning practices, the actual family composition of the sterilized couples and the preferred family composition (Ideal family size) of the currently married women have also been analysed. In demography, family size means the total number of children a women or a couple have given at a point of time. Further, the sex composition of the children among the preferred families have also been shown.

5.1 Family Planning Practices:

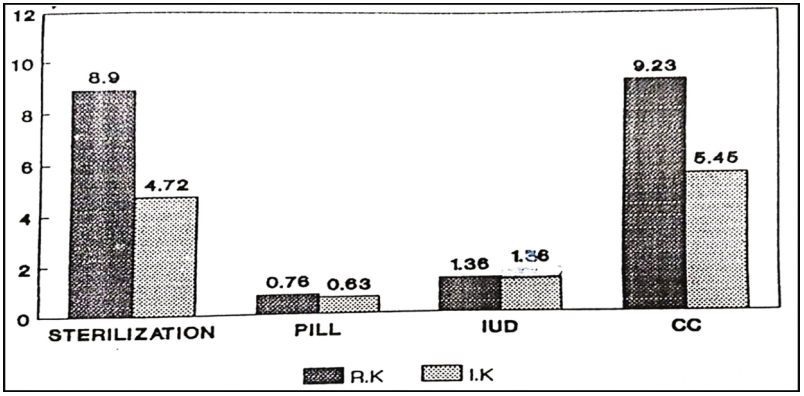
In this section family planning methods currently used by the Kondh couples have been analysed. Table-5.1 shows the use of individual methods. It is seen that among both sections of Kondhs the conventional contraceptive users are maximum. It is fascinating to see that both sections of the Kondhs have preferred sterilization as an important terminal method. The Intra Uterine Device (IUD) users are very less. The lowest accepted methods of family planning are the use of pills. Another interesting observation is that, both sections of Kondhs are found to have maximum frequency for tubectomy (female sterilization) which is quite high that the vasectomy (male sterilization). Above all, it is seen that the total acceptors in the Roadside Kondhs and Interior Kondhs are about 20% and 12%

respectively. The couple protection rate is calculated to be 15.53 for Roadside and 9.34 for Interior Kondhs. This clearly shows that the Roadside Kondh acceptors are more than the Interior Kondhs. The most important reason for this is better awareness of the family welfare programme among the Roadside Kondhs. This has been possible because of the higher level of education and better communication facilities among the Roadside Kondhs.

The age of wife at sterilization has been shown in Table-5.2, it shows that maximum proportion among both sections have accepted sterilization in the age group of 30-40 years. However, the mean age of the acceptance of sterilization are 31.07 and 34.5 among the Roadside and Interior Kondhs respectively. It shows that the Interior Kondhs have accepted the sterilization comparatively late than the Roadside Kondhs. So, it can be further said that, higher the rate of literacy lower is the age of wife at sterilization.

After all, the party (children ever born) at sterilization is also analysed for the two sections of the Kondhs (Table 5.3). It is found that the much parity at sterilization are 4.22 and 4.64 respectively among the Roadside and Interior Kondhs. Thus, it can be concluded that the Roadside Kondhs not only prefer sterilization in relatively young age but also comparatively at a smaller parity.

Acceptors of Family Planning Methods Percentage Distribution



Average Age of Wife and Average Parity at Sterilization

5.2 Preferred Family Composition

The preferred family composition for the present study includes both the desired number and sex of the children in the family as reported by the couples. In other words, the preferred family composition consists of the parents with their preferred children. This has an important role in assessing the level of acceptance for family planning practices. That means after fulfilling the desired family composition couples would accept any of the family planning methods.

It is seen from the table 5.4 that the Roadside Kondhs prefer the 4 member families whereas the Interior Kondhs have an inclination for 5 member families. Out of the total respondents (those who agreed to give the data or answer), among the Roadside Kondhs about 55% prefer 4 member families. This is followed by 5 member families constituting 23%. Interestingly, the 3 member families stand at the third position. Interestingly it noticed that the Roadside Kondhs being aware of various problems and responsibilities of bringing up the children in this competitive world have also preferred 6 and 7 member families for their society (5% and 2.43%) respectively.

Among the Interior Kondhs about 60% of the respondents preferred 5 member families. Next to it constitute the 6 member families about 20% which is followed by 4 member families nearly 13%. About 4% of the Interior prefer 3 member families. The Interiors also have a low preference (2.65%) to 7 member families.

The prefer composition also expresses the extent of sex preference among the couples. It is found that most of the respondents of both sections prefer male children because both the sections belonging to Desia Kondh – the Hinduized section of the tribe Kondh. The desire for having a son is so strong among the Hindus that one will not stop producing children unless a male child is born.

5.3 Actual Family Composition

For analysing the actual family composition of both the sections of the Kondhs, only sterilized families have been taken for consideration. There are two reasons for selecting the sterilized families for the actual family composition. First, these are the completed families of the fecund women and the second, these families have preferred sterilization over any other methods. Hence, the actual composition of these families not only constitute the prefer number of children but also their preferred sex composition. This would indicate the level of sex preference and would provide a scope to compare the results with that of the preferred sex composition of the respondents (Dash 1986, 1987).

The actual family size among the Roadside Kondhs is about six members whereas the family size is nearly seven in case of the Interior Kondhs (Table-5.5). In other words, the couples of the Roadside Kondhs have accepted sterilization on an average after four surviving children while the Interior Kondhs accepted sterilization after five surviving children. When asked the reason for it, they told that due to the fear of infant and child mortality they produce a greater number of children for which there is not a single respondent of accepting

sterilization after parity one. Further, it is found that more than 75% of the sterilized couples of the Roadside Kondhs and more than 70% of the Interior Kondhs have accepted sterilization after four or more surviving children.

As regards the composition of the children of the sterilized couples, it is noticed that both the sections of sterilized couples have 20 different types of combination of children (Table-5.6). It is seen that majority of the respondents of the Roadside Kondhs have 2 sons and 3 daughters which is followed by 3 sons and 1 daughter, whereas maximum respondents of the Interior Kondhs have 3 sons and a daughter, next to it 4 sons and 1 daughter have been widely accepted by the Interior Kondhs. As stated earlier both the sections of Kondhs have a strong preference to male children.

5.4 Major Findings

1. As large as 15.53% couples among the Roadside Kondhs and 9.34% among the Interior Kondhs are effectively protected by means of various family planning methods.
2. The Roadside Kondh women have not only accepted sterilization in younger ages (34 years) compared to the Interior Kondhs (34 years) but also comparatively at smaller parity.

Table 5.1: Distribution of Married Respondents by Family

Sl. No	Methods	Number of RK	Individuals IK
1	C.C	109 (9.23)	52 (5.45)
2	IUD	16 (1.36)	13 (1.36)
3	Pill	9 (0.76)	6 (0.63)
4	Tubectomy	90 (7.63)	37 (3.88)
5	Vasectomy	15 (1.27)	8 (0.84)
Total Current acceptors		239 (20.25)	116 (12.16)
Total non-acceptors		941 (79.75)	838 (87.84)
Grand Total		1180	954

(Figures in brackets show percentage)

Table 5.2: Sterilized Couples by the Present Age and Age at Sterilization of Wives

Present Age	Age at sterilization											
	-25		25-29		30-34		35-39		40+		Total	
	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK	RK	IK
-25	2	-	-	-	-	-	-	-	-	-	2	
25-34	3	-	32	1	13	5					48	6
35-44	-	-	8	2	20	8	2	3	1		31	13
45-54	-	-			11	12	4	7	2	4	17	23
55+	-	-					6	3	1		7	3
Total	5	0	40	3	44	25	12	13	4	4	105	45
Mean age sterilization											31.07	34.5

Table 5.3: Distribution of Sterilized Respondents by Parity of Sterilization

Parity at sterilization	Number of respondents	
	RK	IK
One	-	-
Two	3	-
Three	26	7
Four	35	10
Five	30	22
Six	7	4
Seven and above	4	2
Total	105 (100)	45 (100)
Mean parity at sterilization	4.22	4.64

Table 5.4: Distribution of Ever Married Respondents by Preferred family size

	Preferred family size					
	3	4	5	6	7+	Total
RK	171	608	255	52	27	113
Respondent						
IK	35	116	548	184	24	907
Mean preferred family size						
RK	4.18					
IK	5.05					

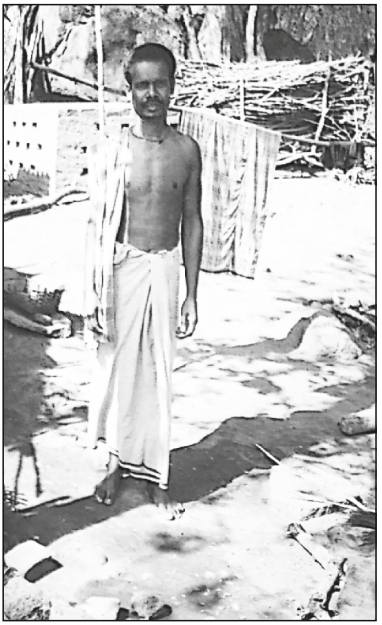
Table 5.5: Distribution of Sterilized Couples by Number of Surviving Children

Number of surviving children	Sons		Daughters		No of sterilized couples		Sex Ratio of children S/D x 1000	
	RK	IK	RK	IK	RK	IK	RK	IK
One	2	2	2	1	4	3	100	100
Two	8	4	8	6	8	5	100	67
Three	27	12	12	5	13	5	225	240
Four	123	24	85	18	52	10	145	133
Five and above	77	80	74	52	28	22	104	154
Total	237	122	181	82	105	45	131	149

Table 5.6: Sterilized Families by Actual Number and Composition of Children

No of surviving children	Sex composition of children	No of sterilized family			
		RK	(Rank)	IK	(Rank)
One	1S	2	(9)	2	(5)
	1D	2	(9)	1	(6)
Two	2S	2	(9)	1	(6)
	1S + 1D	4	(7)	2	(5)
	2D	2	(9)	2	(5)
Three	3S	4	(7)	2	(5)
	2S + 1D	6	(5)	2	(5)
	2S + 2D	3	(8)	1	(6)
Four	4S	4	(7)	2	(5)
	3S + 1D	18	(2)	3	(4)
	2S + 1D	23	(1)	3	(4)
	1S + 3D	7	(4)	2	(5)
Five	4S + 1D	5	(6)	5	(2)
	3S + 2D	4	(7)	6	(1)
	2S + 3D	8	(3)	4	(3)
	1S + 4D	3	(8)	2	(5)

No of surviving children	Sex composition of children	No of sterilized family			
		RK	(Rank)	IK	(Rank)
Six	2S + 4D	2	(9)	1	(6)
	4S + 2D	3	(8)	2	(5)
	3S + 3D	-	-	-	-
	6S +	-	-	-	-
Seven	2S + 5D	1	(10)	1	(6)
	4S + 3D	2	(9)	1	(6)
Total Family		105		45	
Total No. of children		237 (M) & 181 (F)		122 (M) & 82 (F)	
Average number of children per completed family.		**3.98**		**4.53**	



5.1- A Sterilized Kondh Male
Note the bundle of firewood he carries

5.2-Two Sterilized Women in their Middle Ages

06 | Health And Mortality

Health is the state of dynamic equilibrium between the organism and its environment which maintains the structural and functional characteristics of the organism within the normal limits for the particular form of life (race, genus, species) and particular phase of its life cycle (Blackstein 1956). In other words, the individual can be said to be healthy when he is free from subjective symptoms, objective defects and diseases.

Since antiquity the most primitive man had some rudimentary system of medicine to ameliorate pain and disease in order to lead a productive socio-economic life in the society. Over the ages his experiences led to empirical techniques and methods of healing, which in due course of time crystallized into distinct systems of medical practices (Chakravarty and Singhrol 1989).

The present developing countries of the world are fighting against multitudinous problems in order to overcome their retarding factors. i.e. poverty, agricultural and scientific backwardness, over and above the bad health. Health problems and health practices of any community are profoundly influenced by interplay of a complex of social, economic and political factors. To analyse the psycho-anthropological aspects of health culture it is necessary to take a holistic view of all the cultural dimensions that are related to the health. For developing such a view, it is necessary to consider simultaneously the various institutions that the community has either diffusion of an intrinsic innovation (e.g. Shamanism, Witchcraft, spiritual healing etc.) by the community (Sahu 1986).

Health and diseases are measure of the effectiveness with which a human group has adopted to the environment (Lieban 1973). Thus, it is a suitable field for ethnographic research in anthropology as the long been recognized by (Rivers 1929; Evans Pritchard, 1940 and others). More recently there is an apparent spurt in ethnomedical studies among the various tribes (Jain 1968, Mittal 1979, Sinha 1979, Datta Chaudhry and Ghose 1984) and others.

In spite of the tremendous strides in medicine and technology, problems such as malnutrition, communicable diseases, parasitic infestation and others continue to take a heavy toll of people lives especially in the disadvantageous areas. The low health status of people in these areas has not only manifested itself in terms of morbidity and mortality rates but has also affected human development and the capacities of individual to lead a full productive life. Leslie (1967) proposed an approach which focuses attention on the social setting and networks of communication within which health traditions are modified. Hasan (1967) in his study "Cultural frontier of health in village India", noticed two types of social and cultural factors that affects the health of any community.

A) Factors that directly affect the health of the community because certain customer, beliefs, values and religious taboos etc. create an environment that helps in the spread or control of certain diseases.

B) Factors that indirectly affect the health of the community as they are related to the problem of medical care to the sick and invalid. The important demographic goal of the country is to achieve a net reproductive rate of one by all the states in the country at least by the turn of this century. To check the population, it is essential to understand the dynamics of mortality. It is affected by the socioeconomic, cultural and biological variables. A thorough understanding of mortality of any population is essential for initiating any planned effort for population control programme and for economic development. So, for the promotion of small

family norms the basic information on mortality and correlated socio-economic variables are essential.

Overall, the study of mortality deals with the effects of death on population. Mortality is a consequence of both morbidity and of the fatality. The United Nations and World Health Organization have defined death as the permanent disappearance of all evidence of life at any time after birth has taken place (post-natal cessation of vital function without capacity of resuscitation (U.N. 1962).

Research in the area of mortality has gained momentum in the world after the celebration of International year of the child in 1979. (Srivastava and Saxena 1988, Mukhopadhyay 1981).

In this chapter, the analysis of mortality, prevalence of the diseases and the way of treatment and the physical conditions of both the sections of Kondhs have been highlighted.

6.1 Description of the village surrounding and community hygiene practices

For an appropriate understanding of the health status of the tribes it is absolutely necessary to understand their own perception on health, sickness and disease.

Further, the status of health of the people cannot be properly understood from the incidences of diseases only but should also consider the conditions of the village. The constituent elements of the physical environment both in and around are the climate of the area, the flora and fauna, the water resources, the drainage system, the housing and village planning etc. have been stated earlier (Chapter-1). Some of the components of village environment are discussed below.

The climate of the Roadside villages in general is not appropriate for good health and in certain tracts it is malaria prone. The village becomes slushy especially during the rainy season in the absence of any arrangement for the drainage of stagnant water which has

become a breeding ground for mosquitoes. Due to which various types of diseases especially malaria spread and there by the tribal people are affected.

The provisions of safe water (drinking water) in the villages was a great problem in the past but recently due to placement of tube wells, the people are greatly benefited. During the study period it was observed that the water level of majority sources has become dry and some of the tube wells were not functioning well. As the tribes have no proper knowledge of health and sanitation, they drink whatever water they get. As a result of this various water-borne disease like diarrhoea, dysentery etc. spreads. They do not either boil water or filter it before drinking. Like any other rural and tribal habitation, the ponds are noticed to be full of animal as well human excreta. It is observed during the study period that no household has latrine facilities. The sanitary conditions are not healthy and due to the traditional sanitary and toilet habits it has become worse.

The situation of the Interior villages is something different. The roads remain muddy throughout rainy season. It is also observed that there is absence of proper drainage facilities for the disposal of wastewater. Thus, the nearby water places are found to be Blocked with dirty water and become an ideal breeding ground for mosquitoes and other micro-organisms. The water tanks are commonly used for multifarious activities, such as bathing, washing of clothes & utensils, cleaning of domestic animals etc. which pollute the water. The use of such polluted water appears to be a major factor for the spread of various types of diseases.

The tribes of both the sections do not properly wash their hands after defecation. Women do not use proper disinfectant reagent after answering the call of nature. Children occasionally wash their hands and mouth before taking food, sometimes small children do not wash their hands and mouth after eating their food. Similarly, many people do not wash their dirty clothes at all. Although these are some of the

factors which are responsible for inviting the diseases; most important thing is that they are almost in a state of ignorance in eliciting the environmental and sanitation correlates of health and diseases.

6.2 Availability of Health Services

Availability of health services is a vital factor in assessing their utilization. As regards the location of health centres the Roadside Kondhs are so to say in a better position than the Interior Kondhs. Regarding the health services of the Kondhs, the Block has one primary health centre (PHC) and two sub P.H.Cs. Besides these, there are three dispensaries one at Bali pada, the other two are at Jagdalpur and Banthapali. The mentioned health centres or dispensaries do not have so much facilities as the health centres near Berhampur do have. Out of them one subsidiary health centre dose not function well.

Beside the above, there is one well mentioned centre run by a leading Non-Government Organization (NGO), named Gram Vikash. This health centre is having better treatment facilities than the Government PHC. The Roadside Tribes depend on the M.K.C.G medical college and city hospital at Berhampur for treatment of all types of serious, emergency or critical cases. Moreover, there are some private allopathic doctors having small clinics for checking the health conditions of the tribal people. Interestingly they do not take any fees from the tribes. However, if anyone takes injections, in that case they charge the price. The health supervisors come to the villages for detailed information about the health condition of the tribes in an interval of 7-15 days.

6.3 Prevalence of Disease

The common diseases suffered by these tribes have been analysed in this sub-section. The common diseases are collected from the PHC records (Table-6.1). Besides it is also collected directly from the tribal informants. Where the names of the diseases are not known those are included under 'not identified' category.

It is found that most of the families of both the sections have suffered from various types of diseases during the study period. The distributions are 51% and 59% among the Roadside and Interior Kondhs (table 6.2) respectively. It shows that the Roadside Kondhs comparatively suffer less than the Interior Kondhs. The occurrence morbid conditions of the Kondhs are due to the following reasons.

a. Blind beliefs (socio-religious reason)

b. Lack of health consciousness due to lack of education (ignorance)

c. Lack of necessary health facilities in the locality, particularly in Interior areas

d. Addicted to alcohol (alcoholism) and

e. Poverty (economic reason)

Besides the total morbid condition, the distribution of major diseases during the reference period has also been highlighted (Table-6.2). It is found that majority Kondhs suffer from fever due to malaria, typhoid and influenza. As stated earlier the climate of the study area is fovourable for such fever. As large as 14% among the Roadside Kondhs and 16% among the Interior Kondhs have suffered from fever during the reference year, January to December 1995.

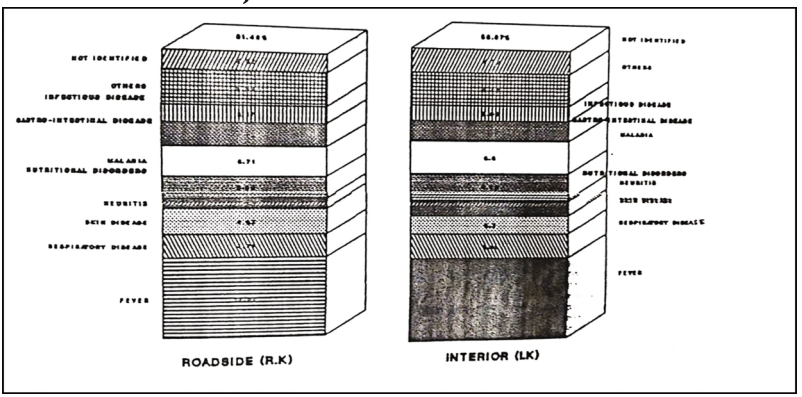
The most prevalent diseases of the respiratory tract are bronchitis, asthma, pneumonia and tuberculosis which is 4.41% for the Roadside Kondhs and 5.11% for the Interior Kondhs.

The skin diseases are also prevalent, among the Roadside Kondhs it is about 5% whereas it is nearly 4% among the Interior Kondh. The most common skin disease is scabies, apart from this, a large number of other skin diseases are also noticed in these areas.

Neuritis, a type of disease occurred in the nervous system which is characterized by lesions of a nerve or nerves either degenerative or inflammatory with pain, is found in these areas. However, it is more among the Interior Kondhs, and the percentages are 1.86 and 2.98

among the Roadside and the Interior Kondhs respectively. According to doctors this disease occurs due to the excess drinking of alcohol.

Distribution Of Major Diseases



Due to malnutrition the incidence of nutritional disorders is found in the study area. It is 3.94% in case of the Roadside Kondhs and 5.28% among the Interiors.

Suffering from the infectious diseases is also observed during the study period which is 3.17% for the Roadside whereas it is 3.65% among the Interior Kondhs.

Malaria is the most common endemic disease of the study area and it more frequent among the Interior Kondhs (6.80%) than the Roadside Kondhs (5.71%).

Gastro-intestinal diseases are of quite common occurrence which is 4.24% among the Roadside Kondhs and 4.16% among the Interior Kondhs. The important gastro-intestinal diseases are dysentery, ulcer, digestive disorders and diarrhoea.

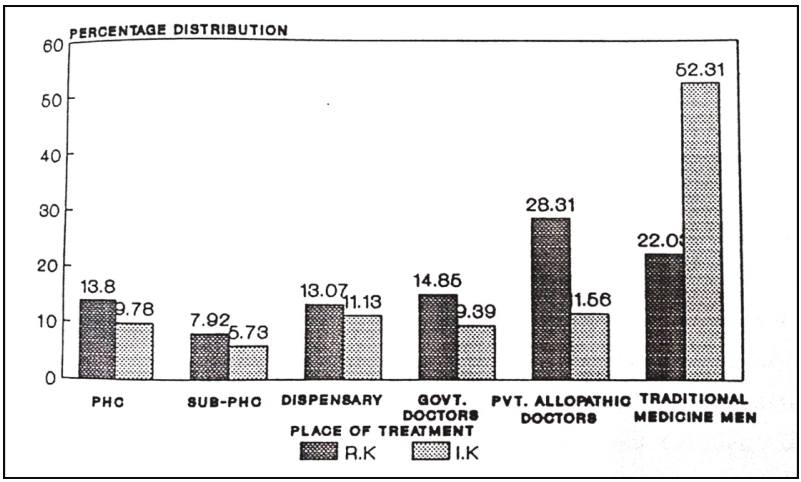
The other diseases such as filariasis, influenza, anaemia, worm infection, ENT disorders, dental diseases etc. also observed which is 6.06% among the Roadside Kondhs and 6.46% among the Interior Kondhs.

However, about 3% of the Roadside and 5% of the Interior Kondhs could not identify their sufferings and so are grouped under 'not identified'.

6.4 Place of Treatment

Kondhs prefer to visit their likely health care units for the treatment of the disease (Table 6.3). It is found that a majority of the Roadside Kondhs (28.31%) consult private allopathic doctors. The maximum proportion of the Interior Kondhs (52.39%) prefer to consult the village medicine man.

Distribution by Place of Treatment



About 22% of the Roadside Kondhs refer their cases to the village medicine men. Nearly 8% of the Roadside Kondhs visit to sub- PHC. There are about 13% of the Roadside Kondhs and 11% of the Interiors like to prefer the dispensaries. Majority of Roadside Kondhs (14.85%) visit Gram Vikash doctors for treatment because they feel that Gram Vikash doctors are better in comparison to other physicians. About 9.39% of the Interior Kondhs also go to the Gram Vikash doctors for treatment. There are about 12% of the Interior Kondhs who go to the private allopathic doctors for consultation.

6.4.1 Traditional Method of Treatment

One of the greatest stumbling Blocks in accepting proper health care service by the tribal people is the traditional belief system. This is

not a serious mistake on the part of the tribes to adopt such methods for cure because this traditional system has been deeply rooted in their social, economic and cultural milieu. The system through ages has catered the tribal needs with the rapidly changing situations. Even they do not bother for the rate of success because both success and failure are attributed to supernatural forces. Lack of health education, motivational effort of the health officials, indifferent attitude of the local people etc. are some of the contributing factors for the unsatisfactory utilization of the modern health services.

The indigenous medical system of the Kondhs can be divided co two groups, (i)the ritual or mythical and (ii) the herbal medicine. The tribal healers are specialist in identifying, propitiating or controlling the evil eyes and spirits which are believed by them to be the fundamental causes of most of the diseases. If the disease is uncommon the they think that black magic underlies the illness. Diseases are also caused by unsatisfied souls of dead ancestors. They believe that a particular deity is responsible for certain natural phenomena. They perform rituals, prayers and offering to deity. They also arrange special festivals to please supernatural forces which are believed to be causing hazards to the health of the villagers.

The second category of medicine men are the herbalist called as Jani (perhaps one in 3-4 villages) who do not enchant mantras though they believe in the magical action of the herbals they use. Such herbalists are informally trained by their father and practice a familial profession. There is a widespread belief that the Kondhs have considerable knowledge of medicinal herbs and that this tradition of empirical medicine is quite effective. It is of course true that some herbs are medically useful. Thus, the creeper guluchilota (Tinospora cordifolia) has been extensively exploited as a source of drug for immunity booster. There are so many examples in connection with herbal medicine which are not suitable for discussion in the present study.

From the above discussion it is noticed that the traditional medicine system to a large extent has been intimately associated with curing of a variety of diseases. The continuity of this medicinal system is attribute to number of factors. The primary reason is socio-religious practices of the people. Another factor is that the traditional medicines are available at a low price and more important, it is that the medicine men are approached at any time to meet the health needs of the people which reinforces psychological strength of the sick person. However, it is observed that the impact of herbal medicine on tribal health status is marginal.

6.4.2 Modern Methods

The Kondhs especially the Interiors are generally more ignorant with regard to modern concept of health and disease. They do not have proper knowledge about the damaging role of parasites, viruses etc. and the causes of disease in the body thereby making a person sick.

It is a fact that the modern facilities available at the disposal of the Kondhs are not efficiently utilized. They are aware of the service rendered at health centres, but they do not visit regularly to the health centres. Some of the Kondhs have expressed their sense of fear during the time of pregnancy and do not report their health problems and complications freely to doctors. It is seen that very few educated tribal women have consulted the doctors during their pregnancy period and followed by the instructions given by the doctors. There are some instances where the people have consulted the local physicians for treatment, but the medical instructions and suggestions given by them are rarely adhered to. When asked, they replied that they do not have financial resources for continuing the entire course of treatment prescribed by the allopathic doctors.

6.5 Current Mortality

Mortality in both sections of the Kondhs of Kukudakhandi Block during one year prior to the study has been discussed in this sub-section.

It is noticed that the total deaths during the year among the Roadside Kondhs and the Interior Kondhs are 59 and 66 respectively (Table-6.4). It is the prime concern to know whether the level of mortality is a decisive factor in determining the fertility pattern of a given population, if so then what is the relation between the two. There is a positive association between high fertility and high mortality rates. Many communities which underwent low death rates experienced eventually lowering the fertility rates (Ogle 1969).

Death Rates

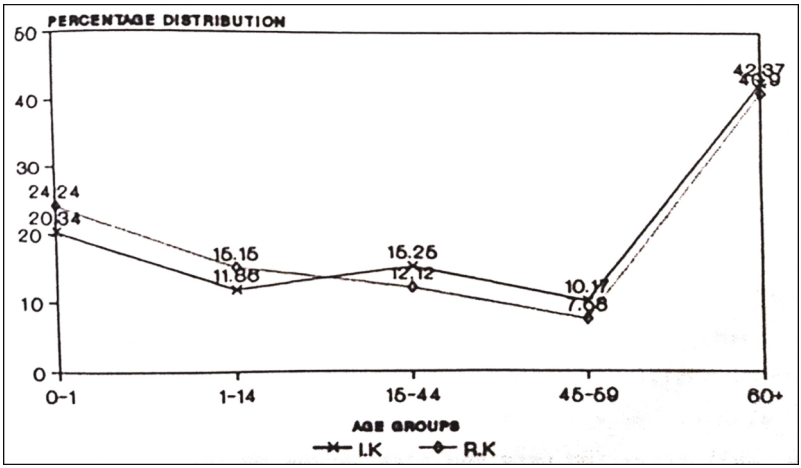
The death rate is taken to be an index of the health status of a Nation (Misra 1970). Death rate also tells about the effectiveness of Public Health Programmes for the control of disease as measured by death rates and morbidity rates of various kinds. Crude death rates are calculated taking the total population of all the households. These are 25.54 and 37.09 per thousand among the Roadside and Interior Kondhs respectively. The infant mortality rate of the Roadside Kondhs is nearly 141 and that of the Interior Kondhs is 219 per thousand which is high compared to the State average, which is 112 as per 1991 Census. Further, the Death Rates are 25 and 37 respectively. These rates are very high compared to the state average (10 per thousand). The age specific mortality rate (Table-6.4) shows that among the Roadside Kondhs the mortality is slightly higher (42.37) than the Interior Kondhs (40.90%) in the age group 60 and above. However, in the child age group (0-14) the Interior Kondhs show higher mortality rates compared to their counter parts. Interestingly males in Interior Kondhs show higher mortality and females in Roadside Kondhs show higher mortality. This could be possible, because of the fact that males among the Interior Kondhs and females among the Roadside Kondhs are relatively more exposed to outside.

However, the registered births and deaths found in the PHC records for 1994-95 do not give the real picture because the registration of births and deaths are not so common among the tribal

people here. This is because the knowledge of the registration system is almost absent among the tribal society.

The above results conclusively prove that mortality rates are higher in Interior Kondhs than among the Roadside Kondhs. This is because hospital and other health centres are located nearer to the Roadside villages while no such facilities are available in Interior areas. It is stated earlier in Chapter-4 that the fertility and birth rates of Interior Kondhs are higher than that of the Roadside Kondhs. Here in this chapter mortality and the death rates are also higher than those of the Roadside Kondhs. Mortality therefore is related to fertility. Higher fertility is often associated with higher mortality, particularly with infant mortality.

Age Specific Mortality Rate



6.6 Differential Mortality as per Calorie Intake

Generally, the differentials in mortality and morbidity and changes in it are related to different socio-environ-economic factors, nutrition is one of them. Like fertility, there are some relationships between nutritional status and mortality levels. Virtually, all well-fed communities have low mortality and poorly fed communities show high mortality.

In Chapter-3 it has been mentioned that on an average, 1890 kcal and 1730 kcal per day are consumed by an adult Roadside and Interior Kondhs respectively and both these averages are less compared to the ICMR requirements. Here in this sub-section an attempt has been made to analyse whether there is any impact of such calorie intake on mortality. Considering the above, data had been collected from 30% households of both the sections. The households which are covered for dietary survey have been differentiated into two categories, calorie intake below the average (B) and calorie intake above the average (A). The measurements of mortality namely Crude Death Rate (CDR) and Infant Mortality Rate (IMR) are taken for comparison in these sub-sections (6.6).

The measurements of mortality as per calorie intake among both sections of the Kondhs shows that, the CDR and IMR are higher among those whose consumption of calorie is below the average than those whose intake of calorie is above the average. It is clearly observed that the higher calorie intake is related with lower mortality. So, the last descriptive 'hypothesis, higher the calorie intake lower is the incidence of mortality and the vice versa', is thus proved and accepted.

6.7 Major Findings

1. The health, the sanitation and the hygiene practices in the study area are not enough.
2. Majority of the Roadside Kondhs, about 28%, consult private allopathic doctors. However, a maximum proportion of the Interior Kondhs (nearly 51%) prefer their traditional treatment.
3. The crude death rate (CDR) among the Roadside and Interior Kondhs are 25.54 and 37.09 respectively.
4. The infant mortality rate (IMR) among the Roadside and Interior Kondhs are 141.17 and 219.17 respectively.
5. The female mortality among the Roadside Kondhs is higher whereas the male mortality is higher among the Roadside Kondhs.
6. The consumption of calories is negatively correlated with the mortality of Kondhs. The mortality rate is higher among those group whose intake of calorie is below the average.

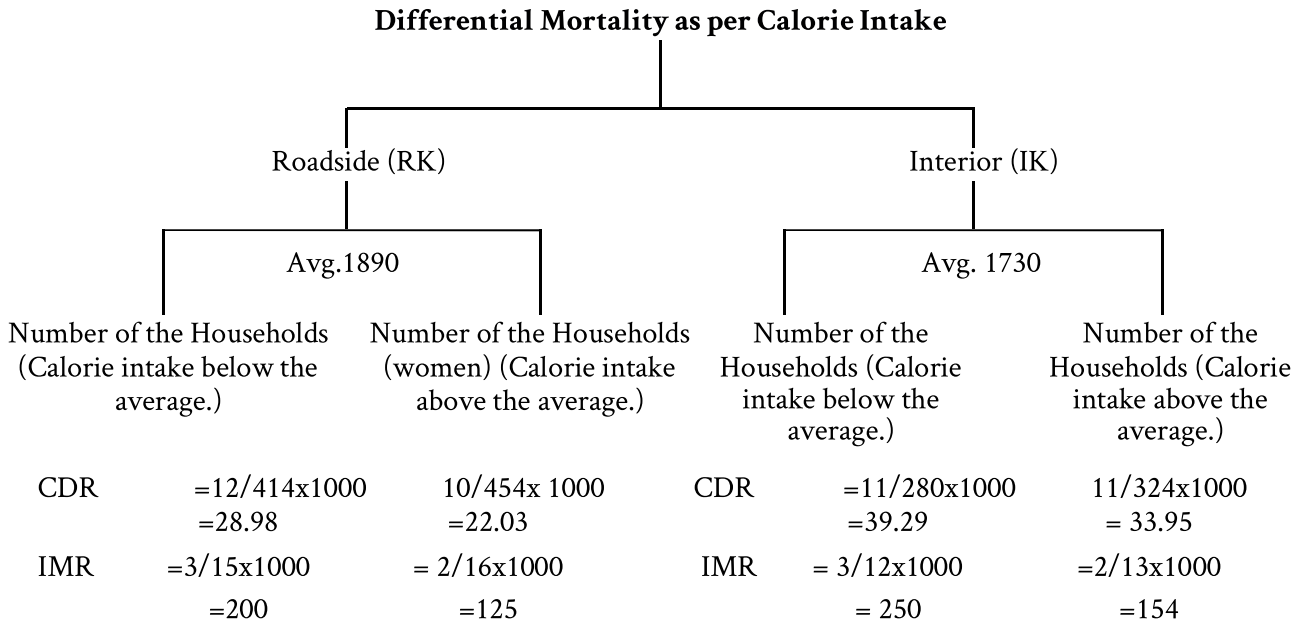

Differential Mortality as per Calorie Intake
Roadside (RK)
Interior (IK)
Avg.1890
Avg. 1730
Number of the Households (Calorie intake below the average.)
Number of the Households (women) (Calorie intake above the average.)
Number of the Households (Calorie intake below the average.)
Number of the Households (Calorie intake above the average.)
CDR
=12/414x1000
=28.98
10/454x 1000
=22.03
CDR
=11/280x1000
=39.29
11/324x1000
= 33.95
IMR
=3/15x1000
=200
= 2/16x1000
=125
IMR
= 3/12x1000
= 250
=2/13x1000
=154

Table 6.1: Distribution of Common Diseases as per P.H.C Records

Sl. No	Type of Disease	Proportion of suffered individual	
		RK	IK
1	Fever	14.02	16.07
2	Malaria	5.71	6.80
3	Infectious disease	3.17	3.65
4	Nutritional disorders	3.94	5.28
5	Nervous disease	1.86	2.98
6	Respiratory disease	4.41	5.11
7	Gastro-intestinal disease	4.24	4.16
8	Skin Disease	4.67	3.70
9	Other	9.43	11.18
	Total	51.45	58.93

Table-6.2: Prevalence of Diseases.

Sl. No	Type of Disease	Proportion of suffered individuals	
		RK	IK
1	Fever	324 (14.02)	286 (16.07)
2	Respiratory tract diseases	102 (4.41)	91 (5.11)
3	Skin Diseases	108 (4.67)	66 (3.70)
4	Neuritis	43 (1.86)	53 (2.98)
5	Nutritional disorders	91 (3.94)	93 (5.28)
6	Infectious diseases	72 (3.17)	65 (3.65)
7	Malaria	132 (5.71)	121 (6.80)
8	Gastro-intestinal diseases	98 (4.24)	74 (4.16)
9	*Other	140 (6.06)	115 (6.46)
10	Not identified	78 (3.37)	84 (4.72)
	Total diseases	1188 (51.43)	1049 (58.97)
	No diseases	1122 (48.57)	730 (41.03)
	Total response	2310 (100)	1779 (100)

** Other: Filariasis, Anaemia, Worm infection, ENT diseases, Eye diseases, Influenza, Dental diseases etc.*

Table- 6.3: Place of Treatment

Place of Treatment	Number of individuals	
	RK	**IK**
P.H.C	319 (13.80)	174 (9.78)
Sub P.H.C	183 (7.92)	102 (5.73)
Dispensary	302 (13.07)	198 (11.13)
Gram Vikash Doctor	343 (14.85)	167 (9.39)
Private allopathic Doctor	654 (28.31)	206 (11.56)
Traditional medicine/ village medicine men	509 (22.03)	932 (52.39)
Total	**2310 (100)**	**1779 (100)**

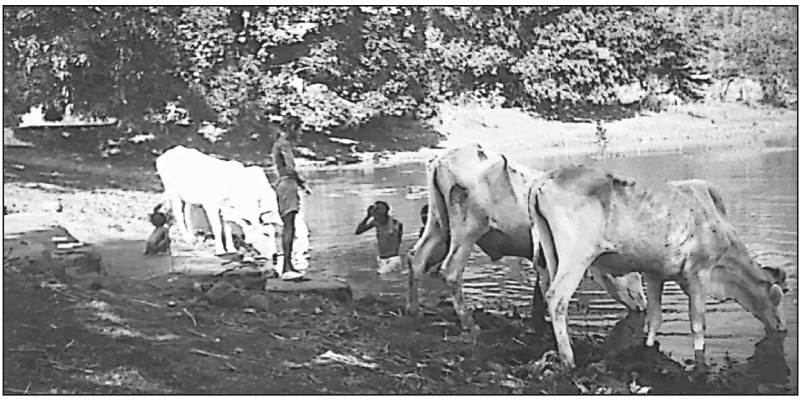
Table- 6.4: Age Specific Mortality Rate

Specific Age Group	Number of deaths during last year				Total	
	Male		Female			
	RK	IK	RK	IK	RK	IK
0-1	5 (8.47)	10 (15.16)	7 (11.86)	6 (9.09)	12 (20.34)	16 (24.24)
1-14	3 (5.08)	6 (9.09)	4 (6.78)	4 (6.06)	7 (11.86)	10 (15.15)
15-44	3 (5.08)	3 (4.55)	6 (10.17)	5 (7.58)	9 (15.25)	8 (12.12)
45-59	2 (3.39)	2 (3.03)	4 (6.78)	3 (4.55)	6 (10.17)	5 (7.58)
60+	14 (23.73)	11 (16.67)	11 (18.64)	16 (24.24)	25 (42.37)	27 (40.90)
Total	27 (45.76)	32 (48.48)	32 (54.24)	34 (51.51)	59 (100)	66 (100)

Measurements of Mortality

Crude Death Rate (CDR) = RK =59/2310 x 1000 = 25.54
IK = 66/1779 x 1000 =37.09

Infant Mortality Rate (IMR) RK = 12/85 x 1000 = 141.17
IK = 16/73 x 1000 = 219.17



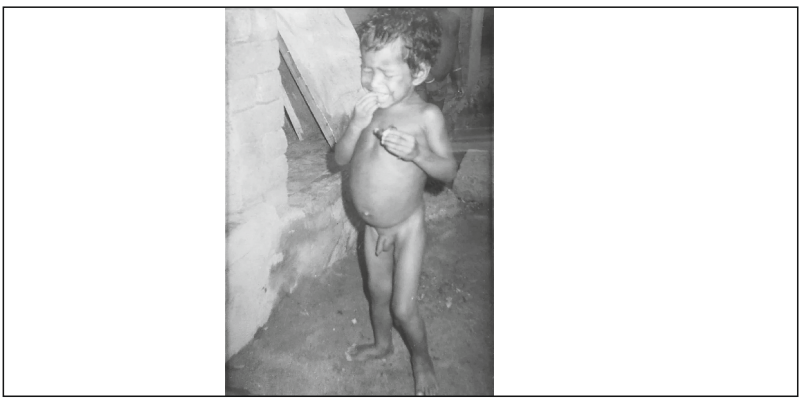
6.1- A pond where men and animals have a common share

6.2- An overcrowded tube well. Note the unhealthy scene.

6.3-A Female Jani, A Traditional Kondh Healer

6.4 - A Male Jani, a traditional Kondh medicine man busy in diagnosis.

6.5-The sub-primary health centre at Bali pada.



6.6- A malnurshed child

07 | Conclusion

India has a great variety of tribal population reflecting its great ethnic diversity. They constitute about 8% of the total population. It is generally recognized that as a result of extreme poverty the intake of various essential constituents of food may be inadequate among the tribes in India. The nature and extent of deficiency varies from tribe to tribe and from place to place among the same tribe.

Nutrition and demography are the basic indicators of population development, both biological and social. A healthy body and a healthy mind are basic objectives of the planning of health development. Mahatma Gandhi, the father of the Nation, rightly told that a hungry man cannot think and contribute to the progress and development of the nation. Therefore, constitution gives guarantees to protect and safeguard the minimum requirement or need of the people over the years, a good number of measures have been implemented to alleviate the sufferings and meet the basic food and health need of millions of people. In the background of national status of the backward communities especially the tribes, a discussion on the ways and means for improving the nutritional status of the masses have been presented. The demographic situation of any population is the product of its cultural and ecological factors. Man has always been dependent, to a varying extent, on fluctuating ecological balance between people and basic resources and its surrounding ecological systems. Carrying capacity is thus basically conditioned by a stratified relation between its food resources and its cultural realities as manifested in the form of mechanism of utilization of available resources.

The present study is focused on the Nutritional status and Demographic Profile among the Kondhs of Ganjam District, Odisha.

For demographic information the data have been collected from the households by interview method whereas for nutritional survey data have been collected both by observing and interviewing all the selected household respondents. The principles of systematic random sampling have been applied for the respondents of selected households from the two sections of the Kondhs. A good number of bi variate and multiple variate tables have been made for finding out different relationships. Various standard statistical methods have also been used in this study. For finding the calorie values and adult consumption unit among the Kondhs, Swaminathan's method has been utilized.

The demographic and socio-economic findings of the respondents have been described in the second chapter. It is found that the age structure of the Interior Kondhs is younger than the Roadside Kondhs. Over 51% of the Roadside and 53% of the Interior Kondhs are currently married.

It is observed that the mean age at marriage of the Roadside male and female Kondhs are about 22 and 17 years respectively whereas the age at marriage among the Interior male and female Kondhs are nearly 21 and 16 years respectively.

The average household size of the Kondhs is about 4 the Interior Kondhs show slightly smaller size of household compared to the Roadside Kondhs. The sex ratio of the Kondh population is very high. The Interior Kondhs show comparatively low sex ratio (1078 male per 1000 females) than the Roadside Kondhs (1175 male per 1000 females).

As regards the literacy rates and education, the Roadside Kondhs occupy higher position. The literacy rates among the Roadside and Interior Kondhs are 72.1% and 55.2% respectively. A very negligible proportion of Roadside Kondhs have received college education i.e. 0.56% and 0.19% among the male and female Kondhs respectively.

As regards the average family income per month, the Roadside Kondhs earn higher (i.e. Rs. 936/-) than the Interior Kondhs, i.e. Rs.790/-. Maximum proportion of both the Roadside Kondhs (27%) and the Interior Kondhs (41%) earn their livelihood by the collection of firewood from the nearby forest. The second highest economic pursuit among the Roadside Kondhs is wage earning through construction labour whereas the Interior Kondhs are working as agricultural labour.

The dependency ratio of the Roadside and Interior Kondhs are 58.87 and 58.83 (per 100 individuals) respectively. It is observed that, whatever the dependency ratio may be, each of the active family member has a share in the family income.

In the third chapter the nutritional status of the Kondhs have been discussed. For calculating the Adult Consumption Unit, Swaminathan's adult consumption unit coefficients have been utilized. For the present purpose male and female adults have been categorized as moderate and heavy workers respectively. Because the Kondh males perform only outside works whereas Kondh females do both inside (household) and outside works. As per ICMR standard both moderate male and heavy female worker should consume 1.2 adult units (for 1.2 adult units calorie required 2800 kcal), The average family consumption units have been calculated as 4.77 for Roadside Kondhs and 4.47 for the Interior Kondhs.

It is well recognized that the level of nutrition is directly related to the quantity and quality of food being consumed. The availability of proper type of food groups is largely dependent on the level of agricultural productivity and nature of cropping pattern. Notwithstanding with the usual fall in production of basic food materials, rice is still consumed as the staple food item by both the sections of Kondhs regardless of their social position. About 87 percent of calorie intake by both the sections of Kondhs is supplied by cereals. Consumption of pulses is minimum among the Kondhs and some families do not consume rice at all. The intake of other vegetables in the

diet varies considerably across socio-economic status of the families. Socio-economically poor and under privileged families are seen consuming rice one time a day with a type of curry, cooked by mustard (fried) and leafy vegetables collected from the nearby forest. Moreover, some of the families who are below poverty line, and cannot afford rice to be consumed two times a day, are seen taking ragi, maize, Italian millet and Saami (little millet) along with some rice. The intake of milk and milk products is almost nil. However, it is completely avoided by the Interior Kondhs. Children are breast feed for about one year after which they are given ragi porridge or rice paste. Meat and fish consumed occasionally or in festive days. Kondhs are very fond of dried fish. Eggs are not eaten and left for hatching. Limited number of families under investigation used oil for cooking. Liquor plays a vital role in tribal life. Among the Kondhs, liquor in any form is not socially prohibited. They feel that liquor is an energetic stimulant which breaks monotony and food which satisfies the starving belly. Mahua (Bassia latifolia) and salapa (Caryota urens) are the common liquors (plant extract) used by the both the sections of Kondhs.

On an average an adult Roadside Kondh and an adult Interior Kondh daily take 1890 and 1730 kcal respectively, both are less than the computed ICMR allowances for the Kondhs i.e. 2400 kcal. This indicates that Kondhs are undernourished with respect to the calorie values of the food articles. Generally, the level of food intake is considered as a reliable index of poverty. In this regard we have reviewed the findings of Dandekar and Rath (1971). According to them a minimum of 2250 calories intake per day has been used as cut off point of all calculation to define poverty line. Some other authorities recommended 2200, 2225 and 2300 calories as base line. According to the Planning Commission, on the basic of the recommendations of the Indian Council of Medical Research (ICMR), the poverty line is 2400 calories (for 1,2 adult units) for the rural areas). If we compare the above data with the present findings, we see that the condition of the

Kondhs is still worse, as they consume nearly 1900 and 1700 calories per day (Roadside and Interior Kondhs respectively). Thus, it is found from the present study that the Kandh diet is inadequate according to the accepted standards.

For assessing the nutritional status of adult Kondhs, two grades are mainly used for the present study i.e. weight-for-height and weight-for-age.

From weight-for-height it is observed that the mean heights of adult Roadside and Interior Kondh males are 158.85cm and 158.75 cm respectively. While the mean height of an adult Roadside female Kondh is 150.57 and Interior Kondh females is 149.91 cm. Maximum proportion of male are found to be in the normal range (considering '+1' and '-1' grades as normal range) whereas majority of the females are underweight (-3 and -2 degrees). This analysis clearly shows that a higher proportion of females in both the sections are below the ICMR standards. However, the Roadside Kondhs are slightly better than the Interior Kondhs.

The nutritional grades by weight for age shows that a maximum percentage of the adult male and adult females of both the sections (Roadside and Interior) are in normal range ('-1' and '+1'). However, weight for age also shows that the Roadside Kondhs are slightly better in comparison to the Interior Kondhs.

Both the measurements 'weight for height' and 'weight for age' reveal that higher number of females are found to be underweight compared to their male counterparts of both sections of the Kondhs. However, the Roadside Kondhs are slightly better compared to the Interior Kondhs. It may be argued here that those who consume higher amounts of calories they have better 'weight for height' and 'weight for age' ratios.

The fourth chapter deals with the fertility behaviour of the Kondhs. It is observed that the mean age at marriage of female Kondhs

of both Roadside and Interior sections are nearly 17 and 16 years respectively. There is not much difference between the two sections as regards the age at marriage. The average age of Kondhs women at the birth of the first child is about 19 and 18 years for Roadside and Interior sections respectively. Majority proportion of the women of both the sections experienced their first childbirth keeping an interval of 1-2 years from marriage. The average gap between the age at marriage and the age at first childbirth are 1.81 years and 1.87 years for the Roadside and Interior Kondhs respectively. This difference, with regard to the age at marriage between the two sections has no meaningful impact on the beginning of the fertility schedule. Almost 39% of Roadside Kondh women and 42% of Interior Kondh women had their last childbirth in the age of 30-34 years and 35-39 years respectively. The average ages at last childbirth are 37.02 years and 37.40 years among the Roadside and Interior Kondh women respectively. This is higher in comparison to the mean age at last childbirth of the women of Odisha which is nearly 31 years. This shows that the Kondhs have low acceptance of the terminal methods of birth control. On the average, three children are born to all the ever-married women of both the sections of the Kondhs. This trend is equal to the general population of the State. The results of the current fertility measurement show very high fertility than those of the state figures. However, the Interior Kondhs have higher fertility rate in comparison to the Roadside Kondhs.

Differential fertility as per calorie intake of both the sections shows that fertility seems to be higher among the lower calorie intake group. In other words, lower the calorie intake higher is the fertility and the vice versa. However, a largescale comprehensive study is essential to draw a definite conclusion.

These statistical figures of nutrition and fertility of the Kondhs of the study area indirectly contribute towards the perpetuation of poverty, malnutrition, and consequently solving the poor health status of both the sections Kondhs.

In the fifth chapter family planning and composition of the family of the Kondhs have been discussed. It is found that the rate of acceptors of any method of family planning is about 20% among the Roadside Kondhs and is about 12% among the Interior Kondhs. The mean parity at sterilization is almost the same, 4.22 and 4.64 among the Roadside and Interior Kondhs women respectively. Further, the Roadside Kondh women have accepted sterilization in younger ages (31 years) compared to the Interior Kondhs 34 years. It can be said that the Roadside Kondhs have not only accepted sterilization in relatively younger ages but also at comparatively smaller parity.

The family composition shows that on an average the Roadside Kondhs have 4 and the Interior Kondhs have 5 surviving children in the family. The preferred sex composition expressed that most of the respondents of both the sections prefer male children because both the sections belong to Desia Kondhs - the Hinduized section of the Kondh Tribe. The desire for having a son is so strong among the Hindus that one will not stop producing children unless a male child is born.

The sixth chapter of the present status highlights the health status along with the current morbidity and mortality of the Kondh families during the last one year from the time of the study. It shows that the Kondhs are totally in darkness with to the modern concepts of health and disease.

They do not have proper knowledge about the damaging role of parasites, viruses etc. in the affliction of disease in the body and thereby making a person sick. Moreover, the traditional habits and belief pattern of the people embedded in the causation and treatment of diseases account for the poor acceptability to modern health care systems. However, it is observed that the indigenous system is followed in cooperation with allopathic system in many Interior villages. The current morbidity pattern of Kondhs shows that about 51% of the Roadside Kondhs and 59% of the Interior Kondhs have suffered from

different types of diseases during one-year prior to the date of the survey. Maximum percentage of both the sections suffered from fever. As regards the place of treatment, most of the Roadside Kondhs prefer to consult the private allopathic doctors whereas maximum proportion of Interior Kondhs refer the tribal medicine men or follow the traditional methods of treatment. Both the current mortality measurements, the crude death rates and the infant mortality rates (Roadside Kondh 25.54 and 141, Interior Kondh 37.09 and 219) show higher figures compared to the figures of the State. Further, mortality and death rates of the Interior Kondhs are higher than those of the Roadside Kondhs. Overall, the female mortality is more than the male mortality rates in both the sections of the Kondhs.

The differential mortality as per calorie intake shows that among both sections of the Kondhs, the death rates and infant mortality rates are higher among those whose consumption of calorie is below the average. In other words, lower the calorie intake higher is the mortality.

Besides all the above findings, the following descriptive hypotheses have been examined in the respective chapter.

(I) It is shown in chapter 3.2 that the Roadside Kondhs have a better 'weight for height' ratio which is closely related to the consumption of calories. As the Roadside Kondhs consume higher calories they have a better 'weight for height' ratio than the Interior Kondhs. **Thus, the first hypothesis, 'the higher the calorie intake the better is the weight for height ratio and the vice versa', is justified and accepted.**

(II) It is observed in chapter 3.2 that the Roadside Kondhs take higher calories for which their 'weight for age' ratio is also better than their Interior counterparts. Therefore, **the second hypothesis, 'the higher the calorie intake the better is the weight for age ratio and the vice versa', is proved and accepted.**

(III) It is observed in chapter 4.6 that the higher fertility is marked in the category "calorie intake below the average'. Therefore, the

third hypothesis, 'the higher the calorie intake the higher is the fertility and the vice versa', is rejected and not accepted.

(IV) It is found in (chapter 6.6) that the lower mortality is recorded from the Kondhs whose calorie intake is above the average. It may be also argued that because of intake of calorific foods, the individual who belong to the category the category "calorie intake above the average", has capable of fighting out high mortality rate. **Thus the last hypothesis, 'the higher the calorie intake the lower is the mortality and the vice versa', is justified and accepted.**

The descriptive hypotheses I, II, and IV appears to be valid and accepted for the present study, whereas hypothesis III is not justified and for the present purpose and is thus rejected. However, a largescale comprehensive study is required to draw a definite conclusion.

As the present empirical study has been undertaken in the tribal areas of Ganjam, the findings may be utilized for the general welfare of those areas. The same will also be helpful for the other tribal inhabited areas of Odisha having similar socioeconomic and demographic features.

Considering the findings of this study the authors feel to recommend the following measures for the wellbeing of the Kondhs as well as for others in the District.

1. To construction pucca roads to all the Interior villages for better communication.
2. To improve housing facilities with water and electricity connection to all the Kondh villages irrespective the place of residence.
3. To open primary educational institution in Interior tribal areas of the District.
4. To provide sanitary and public health facilities in backward tribal areas of the District.

5. To provide medical facilities uniformly to all the family members of the Kondhs.
6. To prioritize nutritional intervention programmes for the vulnerable groups of the Kondhs.
7. To take up various health care and awareness programmes in the District.
8. To organize health camps, particularly for the Interior tribal villages, in every month.
9. To activate family welfare programmes in all the Kondh inhabited areas of the District.
10. Last but not the least, to give adequate incentives and compensations for the acceptors of the terminal methods of family planning.

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Appendics

Nutritional Status and Demographic Profile Among the Kondhs of Ganjam Dist, Odisha.

Serial No: _____	Research Investigator: Ms. K. R. Sabat
Household No: _____	Research Supervisor: Dr. N. C. Dash
Date of Investigation: _____	Place of Research: Khallikote Autonomous College, Berhampur, Ganjam, Odisha, (India).

1 - Household Schedule

1. Name of the Village:
2. Block:
3. Sub-Tribe:
4. Language:
5. Material possession: (radio, Bicycle, Torch, Silver, Gold)
6. Land Possession: (Irrigated/ Not irrigated)
7. Roof of the house: (Thatched/ Tiled/ Asbestos/ Tin/RCC
8. Floor of the house: (Mud/ Cement)
9. Wall of the house: (Mud/Brick/Stone)
10. Room in the house: Bed, Kitchen)

11. Kitchen Garden:
12. Toilet place:
13. Domestic animals: (Horse, Ox, Cow, Goat, Sheep etc.)
14. Family Income:
15. Family Expenditure:
16. Are you satisfied with your income?
17. If no, what should be the ideal family income:
18. Daily food habits:
19. Family size:

2.A. Schedule for Nutritional Anthropometry

H.H. No :

Name of the subject :

Age and Sex :

Weight (kg) :

Height (cm) :

2.B Schedule for Dietary Practice per family

Name of the Foodstuffs	Nutrients 1st Meal Morning	Intake g/day 2nd meal Noon	3rd Meal (Evening)	Any other
Cereals				
Pulses				
Leafy Veg.				
Other Veg.				
Root and Tubers				
Milk and Milk Products				
Meat, Fish & Eggs				
Fruit				
Fats and Oil				
Sugar and Jaggery				
Liquor				

3 - Schedule for fertility and family Planning

1. Age of wife:
2. Age at marriage:
3. A) Age at first childbirth:

B) Age at last childbirth:

4. Gap between the birth of children:

   (1-2) (2-3) (3-4) (4-5) (5-6) (6-7)

5. Age of the last child:
6. Number of children ever born (all live births) by order of birth and sex of the child.

   1, 2, 3, 4, 5, 6, 7, 8, 9.

7. Exceptional births:

   (order and sex)

8. Number of still births:

   (order and sex)

9. Number of miscarriages:
10. Number of induce abortion (M.T.P):
11. a) What according to you is the size and composition of an ideal family:

    b) How many children (Sons and daughters) you desire:

12. Where do you know about the family planning:
13. Which method you want to adopt/ prefer and why:
14. If already adopting family planning method:

    a) Which method:

    ii) Since what age:

    iii) age of wife at first use:

    iv) What is your family size and composition:

    v) Sex and age of the last child:

4- SCHEDULE FOR HEALTH AND MORTALITY

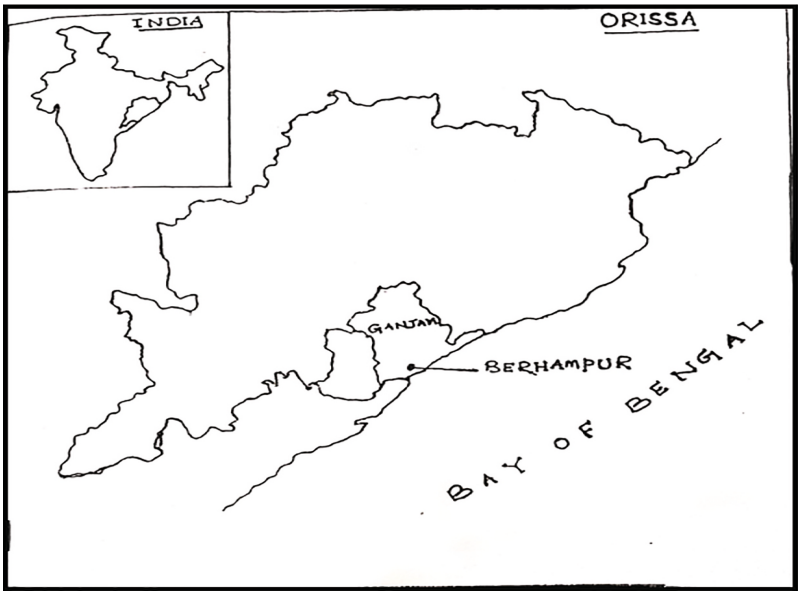
1. Refer question No.6 of the fertility schedule and ask about the number of children staying with him at present.
2. If found difference, ask the reason for it?
3. If it is a death case, ask the reason:

Sex and age of the deceased when died?

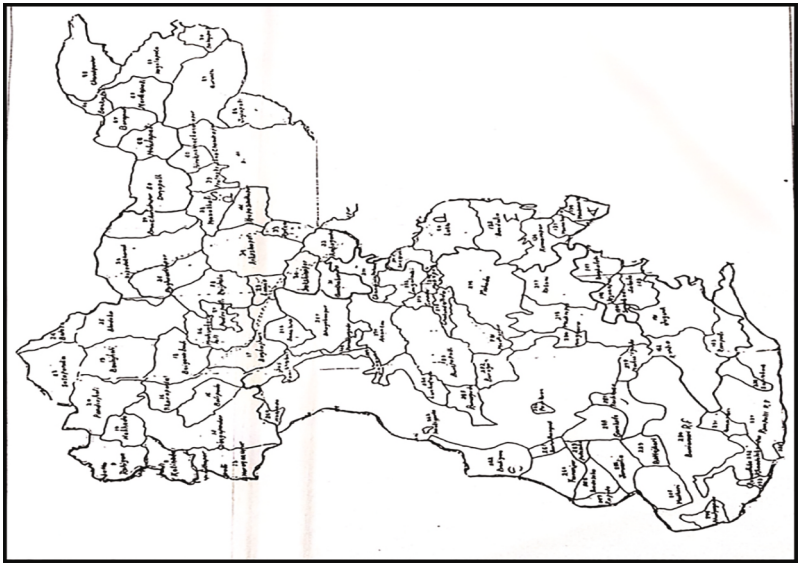
4. If the death is due to any disease:

   Ask about the disease. What are the methods of treatment followed?

5. What are the various common diseases you suffer from?
6. Who is the doctor/ physician you refer common, Reason for this?
7. Do you have village (Tribal) medicine man?
   a) How he responds you?
   b) What he charges from you?
   c) What his success rate?
   d) What is the opinion about him?
8. Do you have health centre in the locality?
   a) Where it is located?
   b) Distance from your village?
   c) How often you go to the health centre?
   d) How often the doctor comes to the village?
   e) How the doctor charges?
   f) What is your feeling towards the doctor?
9. Your idea about seasonal disease? Reasons for it?
10. Your idea about spirit / sorcery etc.?



Map Showing Ganjam District



Map of Kukudahandi BlocK

Dr. Kalpana Rani Sabat (b.1972) obtained her M. Sc. Degree in Anthropology from Berhampur University in the year 1993 and received her Doctor of Philosophy (Ph.D.) in 1998 from the same University. Her Research was on the Nutritional Status and Demographic Profile among the Kondh Tribe of Ganjam District, Odisha. Dr. Sabat worked as a Research Officer in the Institute of Pharmaceutical Sciences and has handled AICTE approved Tribal & Rural Projects. She has also worked for the Screening of Herbal Medicine present in the Flora of South Odisha. Dr. Sabat has published many papers in National and International Journals basing on her empirical studies. She has also attended many National Seminars, Conferences and Workshops, where she presented her Research findings. Dr. Sabat has the credit of being a Keynote Speaker in some Seminars. Because of her health reasons she could not continue with her Job for a long time. However, her inspiration and sincere family effort has made her only daughter (Rani) a Medical Student who would pursue and fulfil the unfinished work of Dr. Sabat by being a Doctor in Social and Preventive Medicine. At present Dr. Sabat is at Pondicherry with her daughter.

Prof. Nirmal Chandra Dash (b.1953) has over 45 years of Research and 35 years of Teaching experience. He was the first Anthropology Honours Graduate in the State who pursued his Post Graduate in Anthropology at Utkal University being a recipient of National Merit Scholarship and received First Class Master's Degree in 1975. After which he joined the International Institute for Population Sciences (IIPS), Mumbai as a Government of India (GOI) Fellow in 1976 and obtained his M.Phil. Degree. He then opted Utkal University for his Doctoral Research after receiving UGC jr. Fellowship in 1977. He discontinued the Fellowship and Joined as a Lecturer in the Department of Anthropology in a Premier Government College (BJB) of the State in 1978. Then he served at Khallikote Autonomous College, Berhampur (1990-2001) and DD Autonomous College, Kendujhar (2001-2004). Prof. Dash joined FM University, Baleshwar as a Professor in the newly opened Department of Population Studies and got Superannuation in the year 2013. Then he joined KISS University as a Visiting Professor but could not complete his term due to the health conditions of his wife.

Professor Dash has published more than Hundred Research papers in various National and International Journals. He has attended a lot of National and International Seminars and has also Chaired and Organized a few. He has supervised over Thirty M.Phil., Fifteen Ph.D. and Two Post-Doctoral (D. Litt. & D. Sc.) Scholars during his service period. Professor Dash has published Five books. He has successfully completed Seven Research Projects including One UGC sponsored Major project. He has also worked for ICSSR, OXFAM, UNDP and some Government assisted projects.

Prof. Dash is a Life and Patron Member in many Academic and Research Organizations, to name a few, ISCA, IASP, IAA, UIAF, VK-AICYAM, BVP, OES, LIONS, WALDENWOODS Etc. Besides, Prof Dash is also a Member of the Advisory Body and Governing Body in some Reputed Organizations. He has acted as Editor in a few reputed Journals and presently he is an Editor of Adivasi, the Journal of SCSTRTI, Odisha. Prof. Dash has recently joined as Professor Emeritus in the Department of Anthropology, KISS University and is still active in Research activities.